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ABSTRACT

This collection of reports on the measurement and meaning of unemployment consists of 13 papers devoted to some of the deficiencies in youth employment statistics, some of the necessary considerations in their implications, and many of the issues involved in their application to assess program impacts. Analyzed first are the youth labor force statistics obtained from the Current Population Survey and the National Longitudinal Surveys. Teenage entry and exit into the labor market and unemployment flows are discussed. Also examined are job search implications of the transition from school to work and the role of work attitudes and labor market knowledge in establishing stable and successful employment careers. Following a description of economic and sociocultural variables affecting rates of employment are explored. The effects of child labor laws on youth programs are investigated. Included is a discussion of social development and group selection, methods of allocating funds to alleviate teenage unemployment, and the cost of lowering youth unemployment. (MN)

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YOUTH KNOWLEDGE DEVELOPMENT REPORT

2.1

RESEARCH ON YOUTH EMPLOYMENT AND EMPLOYABILITY DEVELOPMENT

Youth Unemployment—Its Measurement and Meaning

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May 1980

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OVERVIEW

The statistical parameters of the youth employment problem are by now a familiar litany. Teenagers account for nearly a fourth of the unemployed, and persons under age 25 represent almost one half, even though they constitute only a tenth and a fourth of the labor force respectively. The rate of unemployment among youth age sixteen to nineteen is two and a half times the overall rate. Two-fifths of black teenagers in the labor force are without jobs.

There is general public recognition, based on such statistics, that youth unemployment is a critical national issue. Yet beyond this recognition, there is little agreement about the actual dimensions of the job deficit, the severity and implications of joblessness, its causes, or the effectiveness of alternative public policies. Libraries have been written about youth employment and unemployment, but the literature raises as many questions as it answers.

One fundamental reason is the inadequacy of our measurement tools and the uncertainties related to their application. The first step in addressing any problem in a "rigorous," "scientific" manner is to develop a set of measuring rods which will realistically appraise the characteristics of the phenmenon, which will aid in assessing its causes, and which will provide a baseline for determining the impacts of interventions. In the employment arena, the statistical system, while extremely sophisticated, was not developed for use in understanding and measuring youth employment problems. The concepts and definitions of "employment," "unemployment" and "labor force" participation were largely derived from the Depression experience, when the primary issue was joblessness among adult breadwinners. The meaning of these terms becomes clouded when applied to persons with very marginal and fluctuating attachments to the world of work. Interview methods by which the employment and unemployment data are derived may also bias results as they relate to youth, since the head of household who is interviewed may not know about the attitudes and activities of junior members. There are so many other factors involved during the "tempestuous teens" and early twenties that employment characteristics and developments cannot be considered alone.

By the same token, as youth have become an increasing share of the labor force, their inclusion in the overall employment and unemployment statitics have generated uncertainties about the meaning of these numbers. Equal weight is given a sixteen-year-old high school student looking for a 5-hour-a-week job to pay for clothes as is given the unemployed teacher with a family to support. The aggregate data mix "apples" and "oranges," and it is increasingly difficult to determine the implications of any given mixture. Some have argued, for instance, that historically high rates of national unemployment must now be tolerated because of many youth are counted in the statistics even though their problems are neither serious nor solvable.

A few illustrations quickly suggest some of the differences between adult and youth unemployment which cloud the overall data and make it difficult to assess the data which are available for youth:

- Half of teenagers (sixteen to nineteen) unemployed during the school year are students. This is a dramatic change from the early 1960's when less than a fourth of unemployed teenagers were in school. Among twenty to twenty-four-year-olds, only an eighth of the unemployed are students, and the proportion drops to 7 percent among twenty-five to thirty-four-year-olds.
- More than a third of sixteen to nineteen-year-olds are part-time job seekers, compared to a tenth of persons twenty-five and over. Teenagers who work average 28 hours of employment weekly compared to the 40-hour average of adults.
- Youth employment and unemployment is very seasonal. From December to July, employment among sixteen to nineteen-year-olds rises by a fourth compared to a tenth for twenty to twenty-four-year-olds while remaining almost constant for persons twenty-five and over. Youth account almost all of the December to July employment increase.
- Among persons with labor force experience during the year, three-fifths of sixteen to seventeen-year-olds, two-fifths of eighteen to nineteen-year-olds, and a fifth of twnety to twenty-four-year-olds are in the labor force less than half the year compared with only a tenth of older participants.
- Few young persons are breadwinners. Less than a tenth of sixteen to nineteen-year-olds in the civilian labor force are married with a spouse present, compared to two-fifths of twenty to twenty-four-year-olds and seven of every ten twenty-five to thirty-four-year-olds.

- The frequency of entry and exit from the labor force is a major factor in youth unemployment. Seven of ten unemployed youth are entrants or re-entrants into the labor force, compared to less than two-fifths of all unemployed. Similarly, half of unemployed teenagers are jobless five weeks or less compared with less than two fifths of the unemployed age twenty and older.

- For every unemployed youth age sixteen to nineteen, there is another who claims to want a job but is not looking--largely because of school attendance.

- Among employed sixteen to nineteen-year-olds, more than a third earn less than the minimum wage. While some unemployed youth have unrealistic wage expectations, two-fifths claim they would take a job that paid less than the minimum and another fifth would take a job at the minimum. The mean wage for employed sixteen to nineteen-year-old males is less than half that for males twenty-five and over. For persons under age twenty with work experience, mean income is one third that of workers age twenty to twenty-four and one fifth that of persons age twenty-five to twenty-nine.

- Youth with "serious" problems are a minority of all unemployed youth. Dropouts represent less than a fourth of unemployed sixteen to twenty-four-year-olds, and nonwhite school dropouts only one-twentieth. Only a third of unemployed youth are from poor families, and half from families below the BLS lower living standard. An eighth are from poor, nonwhite families. Likewise, only one in twenty jobless sixteen to nineteen-year-olds are long-term unemployed (twenty weeks or more) compared to a fifth of adult unemployed.

- The labor force data for youth largely reflect demographic trends. The annual growth rate of the sixteen to nineteen labor force cohort was 3.9 percent from 1970 to 1975 compared to 2.2 percent for twenty-five to fifty-four-year-olds. From 1975 to 1980, the growth rate for youth slowed to .8 percent annually. From 1980 to 1985, the youth labor force is expected to actually decline by 2.8 percent annually.

- From 1964 to 1970, government employment and training programs and the military accounted for one-fourth of the employment growth for sixteen to twenty-four-year-olds. From 1970 to 1976, the decline in the military exceeded the expansion in program enrollments, so that the government sector activity was actually a negative factor.

These few examples suggest the many considerations in interpreting and applying employment and unemployment statistics regarding youth. The examples are evidence that some data are gathered on these important issues. However, the available statistics are in many cases sporadic and incomplete--adequate to highlight issues but not to address them fully. And in many cases, there are copious data but a great deal of uncertainty about what they mean.

To improve understanding of youth employment problems and programs, it is necessary to begin by improving our understanding of the measurement system, its uses and its abuses. In February 1978, a Conference on Employment Statistics and Youth was held to bring together the Nation's experts to assess these issues. The conference was organized by the Institute of Industrial Relations of the University of California, Los Angeles, under the joint sponsorship of the Department of Labor's Office of the Assistant Secretary for Policy, Evaluation and Research, and the Office of Youth Programs, with guidance from the National Commission on Employment and Unemployment Statistics. A Total of twenty-two papers were commissioned for this conference.

The first five papers focus on who is counted and the dynamic aspects underlying our static measures. In "Counting Youth: A Comparison of Youth Labor Force Statistics in the Current Population Survey and the National Longitudinal Surveys," Michael Borus, Frank Mott and Gilbert Nestel document how differences in survey techniques can make drastic differences in measured labor force status. The analysis documents the very wide margin in determining whether youth are really inside the labor force, raising fundamental questions about the reliance which can be placed on fluctuations in measured employment and unemployment rates for youth. Ralph Smith and Jean Vanski, in "The Volatility of the Teenage Labor Merket: Labor Force Entry, Exit, and Unemployment Flows," demonstrate that for youth even more than adults, the point-in-time measures of employment and unemployment mask an enormous flux as youth move into and out of jobs and the labor force. The "probabalistic" approach to analysis which considers these dynamic facts is complex but frequently is necessary to fully understand the static labor market statistics.

The "Measurement and Interpretation of Teenage Unemployment in the United States and Other Countries," by Beatrice Reubens, assesses our statistics from a comparative international perspective, indicating that the high rate of teenage unemployment in the United States is due in part to the inclusion of 16- and 17-year-old student job seekers in the tallies, and in part to the use of household surveys rather than registration with unemployment agencies as the source of data on unemployment. The greater proportion of youth in the U.S. who combine work and schooling is also a source of our Nation's comparatively high rate of teenage unemployment. Further analysis of the school-to-work transition experience in other countries--its institutional basis and demographic underpinnings--as well as of employment and unemployment concepts and data collection systems, are required before the international comparisons have meaning. Because other countries do things differently does not make our approach right or wrong. Certainly, however, it suggests the availability and acceptability of options.

Orley Ashenfelter's analysis of the relationship between employment and unemployment over time in "What Do Teenage Unemployment Statistics Measure?" shows that while unemployment and employment move in lockstep for adults--i.e., more jobs mean fewer unemployed--the pattern does not hold for youth, particularly 16- and 17-year-olds and female teenagers. This is another way of stating that there are enormous flows into and out of the labor force for youth, and that labor force participation rates, as well as unemployment rates, must be considered in any analysis of the youth employment situation. While the Ashefelter approach yields some interesting information--for instance, the finding that black teenage unemployment is more like that of adults than white teenage unemployment and, therefore, presumably more "real"--a more sophisticated approach considering labor force and unemployment exit and entry probabilities is necessary to move beyond the obvious finding that unemployment means something much different for the average youth than the average adult.

"Youth Participation Rates and the Availability of Jobs," by Francine Blau provides a cross-sectional analysis of unemployment and labor force participation rates, considering a number of other variables. The paper finds that where unemployment is high, all else being equal, labor force participation is low. On the other hand, the probabilities of labor force entry or exit over a one-year period do not vary significantly by rate of unemployment. The author concludes that net effect of the ups and downs of the business cycle on labor force participation of youth will not be very great, but the prolonged periods of high unemployment can produce a stockpile of discouraged workers. The conclusion is consistent with other findings: cross-sectional analyses usually indicate a stronger relationship between unemployment and labor force participation than time-series analyses. There are some problems with the Blau analysis in that the base-year area unemployment rather than changes in employment are the variable being tested for impact; the latter would be more appropriate. Also, given the weak correlation between overall and youth unemployment rates, there is not likely to be a strong relationship when overall rates are used as a proxie. Nevertheless, the analysis correctly suggests the complexity of the relationship between job seeking and opportunity, and reiterates the underlying uncertainties about what is being measured by youth employment rates.

The next nine papers examine labor market, institutional and societal factors which affect the measured rates of employment and unemployment. Stanley Stephenson's analysis, "The Transition from School to Work with Job Search Implications" examines the question whether unemployment during the early years in the labor force is constructive. One theory is that joblessness reflects an exploration process leading to better job opportunities. Another theory is that employment itself teaches job skills and leads to future success. The paper explores the evidence in favor of these theories. In "The Establishment of Stable and Successful Employment Careers: The Role of Work Attitudes and Labor Market Knowledge," Paul Andrisani examines the attitudinal and informational underpinnings of labor market participation by youths, addressing questions such as whether youth really want to work and how they learn and how much they know about labor market opportunities. Daniel Glaser's "Economic and Socioeconomic Variables Affecting Rates of Youth Unemployment, Delinquency and Crime" discusses the impact of unemployment on crime rates and the extent that illegal activities may provide an unreported alternative to gainful employment. Paul Osterman's paper on "Racial Differentials in Male Youth Unemployment" assesses all of the factors, including discrimination, which result in the staggeringly high levels of youth unemployment as well as the consequences of these severe problems. Finally, "The Effects on Child Labor Laws on Youth Employment" by Daniel Mitchell and John Clapp analyzes the legal impediments to youth employment and the way these affect measured rates of employment and unemployment.

The sixteen to twenty-four school-to-work transition period is also the time when most people move from dependency to marriage or self-support. "Family Status and Labor Force Patterns," by Martha Hill, suggests that there is a substantial interrelationship between family and household structure and labor supply. Youth who are heads of households tend to work much more frequently than those who are dependents or wives. For males, marriage is related to very substantial increases in labor force participation rates and hours worked. For females, if there are children there will be substantial declines with marriage; for childless wives, this is not true. There appears to be a weak relationship between the composition or change in the parents' household and the labor force participation rate for youth, although nonwhite males from split families have a lower labor force participation rate than those from two-parent families. The analysis provides some important longitudinal data on changes in family status and work. However, it is impossible to determine the direction of causality. It is uncertain whether increased work opportunities contribute to the rise in independent living or whether the trend toward living alone leads to increased job seeking. It is clear, however, that both living arrangements and family status, as well as changes, must be considered in determining the meaning of employment and unemployment numbers, particularly the prevalence of breadwinning responsibilities.

The question of how to count students has been raised in other papers. "Education, Occupation and Work," by David O'Shea looks at the indirect rather than direct impacts of education. According to the analysis, education is more critical in determining occupational and social status than income. The relationship between earnings and education is apparent mostly in high skill, high prestige occupational categories which account for about one-third of the work force. The payoff of education apparently increases with age in all occupations. Over time, there has been a convergence of education levels among workers in all occupations. The findings certainly raise questions whether longer schooling pays off for the average youth who will not go on to professional and managerial ranks. This is important relative to programs tying employment and training services to school attendance in order to encourage school completion. If greater education attainment does not improve earnings, it might be better to focus on dropouts. Certainly, these in-school programs must be subjected to careful scrutiny. While the analysis ignores a large part of the literature on human capital theory and returns to education, and while it suffers the problems of most such studies in handling education quality issues, its fundamental messages are important--that education decisions cannot be considered from the economic perspective alone, that many youth end up over-qualified for the jobs they eventually achieve, that there is much we do not know about the process, and that the indirect, marginal effects of education on measured rates of employment and earnings for young people are probably quite limited.

"Alienation and Adjustment to Limited Prospects," by David Gottlieb, suggests that data on employment or unemployment provide little useful information about the real issues facing youth and, in particular, the factors at the key decision points such as entrance into the military or training programs, departure from school, or assumption of family responsibilities. The paper speculates that youth may not understand survey questions or many respond based on their perceptions of what is or is not wanted rather than reality, but that the attitudes of disadvantaged youth probably do not differ much from those of more advantaged. The analysis suffers from a lack of clear definition of the term alienation or precise information about how this might affect specific responses, but it does suggest the need for in-depth personal interviews to supplement employment and unemployment survey data.

"Do Youth Really Want to Work," by Patricia Miller and William Simon, compares the work attitudes of youth and adults from a variety of perspectives. Substantial and persistent continuity is found between the work values of younger and older men. Youth emphasize security somewhat less, give a marginally higher priority to immediate payoffs, and give more consideration to the time away from the job, but the differences are less significant than the similarities. The unemployed have much the same values as the employed. Blacks who suffer from greater job insecurity, lower wages, and lower status employment not surprisingly give more emphasis to security, wages, and time away from the job. Most critically, youth are much less likely to rate their current jobs highly by any criterion than are adults. Given the parallel in attitudes and expectations, this would suggest that youth leave jobs more frequently simply because these are not rewarding on the average and they can do better with age and mobility. The analysis is flawed somewhat by the exclusion of adults earning more than $15,000 annually, but the fundamental message is that for the vast majority of youth, there is no "alienation" apparent in work values.

The next four papers discuss the direct and indirect impacts of government activities. The military is a primary employer of youth, and Richard Cooper's "Youth Labor Markets and the Military" suggests the substantial and frequently ignored effect of Armed Forces requirements and policies on civilian employment and unemployment statistics. In "Direct Effects of Employment and Training Programs on Employment and Unemployment: New Estimates and Implications for Employment Policy," Charles and Mark Killingsworth estimate the impacts of manpower program enrollments on the official employment and unemployment counts. "Social Development and Employment: An Evaluation of the Oakland Youth Work Experience Program" by Delbert Elliott and Brian Knowles explores the effects of a "model" work experience program on subsequent employment and earnings. While the results are not necessarily generalizeable, they give an indication of some possible considerations in assessing indirect impacts of employment and training programs on future employability. Ernst Stromsdorfer and Tei-Wei Hu discuss the ways in which program impacts on employment and earnings can be assessed in "Control Group Selection."

The next two papers examine the long-term consequences of the employment experiences of youth. Wayne Stevenson in "The Relationship Between Youth Employment and Future Employability and Earnings," concludes that after controlling for related variables, early labor force status has a significant impact on future employment and earnings. Those who work during the trnasition years tend to do better than those who do not. The worst off are teenagers who are out of school and out of the labor force. Skill training during the transition period is also correlated with higher earnings. These results were obtained though the analysis of measured labor force status in a single week in the base period; if a full year's employment history or even a multi-year history had been considered, there would probably have been even greater evidence of impact.

"Employment and Earning Patterns: The Dynamics of Change," by David Farber takes this longer term view. The analysis of the earnings patterns of employment and training program participants as well as a random sample of all wage earners indicates a consistency in the earnings trends of individuals. Those young persons who experience rising annual earnings in the early years are likely to continue upward. Those with mixed earnings patterns are not likely to do as well. Because of the high correlations between early patterns and future earnings, regression analyses should probably include pattern variables. What is left unclear is the extent that policy intervention can alter patterns, or whether the patterns reflect sorting or success building on success. The latter view would support the finding that work provides experience and that the labor market is a ladder which must be climbed; the former explanation would essentially mean that winners and losers are predetermined by personal characteristics.

The final two papers focus on the use of employment and unemployment statistics in addressing questions about the scale of needed government initiatives and the distribution of resources. "Methods of Allocating Funds to Alleviate Teenage Unemployment Problems," by Joseph Cordes and Robert Goldfarb examines the formulae by which youth employment and training resources are distributed and the data bases to which these formulae are applied. Paul Flaim and Paul Ryscavage use available labor market statistics to estimate the job deficit for youth in "Lowering Youth Unemployment" How Much and at What Cost?"

Overall, then, this set of papers presents a panoramic review of the problems of gathering, interpreting and applying employment and unemployment data relating to youth. The conclusions are critically important in seeking to better understand youth employment problems and programs:

1. Survey data responses vary considerably depending on who is asked what question. Published Bureau of Labor Statistics information is frequently considered sacrosanct and used as a basis for highly sophisticated analysis. In fact, however, the youth unemployment rate may vary by more than half depending on who in a household is interviewed and how they are approached.

2. The youth labor market is highly dynamic, and static conceptualizations are not always appropriate. For instance, there is an obvious job deficit for youth, but increasing the number of jobs may simply bring new entrants into the labor force, or draw youth away form other openings, and might not directly reduce unemployment. If the jobs are more stable, this will reduce unemployment; if they are unstable they may increase shifts in and out of the labor force and employment. To the extent that occupational information and placement services lead to better job choices they will increase the stability of employment; to the extent they prolong the job search, they will raise unemployment.

3. In general, work experience seems to pay off in the sense that those who hold jobs during school tend to have more stable employment in the future. However, it is unknown whether government created slots which fill the job deficit are as effective as other employment, or whether the effects which prevail on the average also hold at the margin; i.e., whether putting another youth to work pays off in the future for that youth.

4. Youth in general do not have unrealistic job expectations, and like most everyone else, they respond in a reasonable fashion to labor market realities. Youth who know more about the labor market and who are more positively oriented to work tend to do better. It is, again, uncertain whether public intervention can improve labor market knowledge or motivation, and whether the participants who are motivated and informed by such programs will do better than those who are not.

5. The interaction between crime and unemployment is apparently a two-way relationship. However, so many factors are involved that it is uncertain whether increased employment opportunities will lead to a direct reduction in crime.

6. Black youth employment problems are the result of a massive array of factors. Unemployment measures only one of the symptoms and is not a very accurate reflection of differentials in opportunity. Unemployment does not have the same consequences for white youth as it does for blacks.

7. Youth under age eighteen are underrepresented in certain occupations covered by child labor laws. However, youth shift into these occupations as they age, and it is uncertain to what extent the laws alter overall youth employment or restrict certain groups of youth from getting into more promising career tracks. Likewise, it is unclear what risks are involved in the covered sectors and whether younger persons are better off outside.

8. The military is a major employer of youth. During the Vietnam era, growth of the Armed Forces absorbed large numbers of young men and contributed significantly to declining unemployment. During the 1970's, cutbacks in military personnel had the opposite effect. Despite the volunteer nature of military service, employment statistics continue to count the military sector separately. Inclusion might be more appropriate.

9. Employment and training programs have a direct effect on youth unemployment. It is estimated that expanding enrollments between 1964 and 1969 accounted for 90 percent of the decline in unemployment over this period. From 1969 to 1976, the programs did not expand any more rapidly than the youth labor force so their contribution to reducing unemployment was little greater in the latter years than in the former.

10. Indirect impacts of programs are extremely difficult to measure. Random assignment to experimental and control groups is really the only effective mechanism, and even this has such a wide margin of uncertainty that modest increases in employability from short-term youth programs are not easily registered.

11. Employment and training resources should be distributed according to needs and the types of problems being addressed. Because of the absence of unemployment data for youth by prime sponsor, CETA funds must be distributed according to overall unemployment rates or poverty. These are poor proxies for youth unemployment and youth needs.

12. Available data cannot indicate how many youth would work if jobs were available. However, under a range of assumptions, it is possible to estimate the job deficit and wage bill necessary to meet it. To reduce teenage unemployment from 1976 to 1969 levels, assuming the new jobs would pay minimum wage, would cost around $1.7 billion. Economic recovery and the programs initiated under the Youth Employment and Demonstration Projects Act with a billion dollars of funding in fiscal 1978 can make a substantial dent in the problem.

These papers do not yield a coherent set of policy recommendations. Rather, they are suggestive of some the deficiencies in youth employment statistics, some of the necessary considerations in their interpretation, and many of the issues involved in their application to assess program impacts.

The obvious recommendation is for more and better data concerning youth. Certainly, labor force information on youth by labor market area is necessary for the equitable distribution of resources. Much more needs to be gathered about the earnings of youth as well as the types of jobs they fill. Family status usually changes during the teen years and early twenties, and more information is required relating marital and family changes, as well as breadwining responsibilities, to labor market changes. Some "hard" numbers are required on the income alternatives to work for youth and the activities of youth out of school and out of the labor force. The dynamic aspects of youth labor force participation suggest the need for more longitudinal information with monthly or even weekly, as opposed to annual, interviews in order to better determine the factors underlying employment status decisions. A determination must be made whether household head or individual interviews yield the more accurate information.

But the answer is not just more data. There are questions on how these numbers are used. The papers suggest some of the factors which must be considered in analyzing youth labor market experience. For instance, Armed Forces levels must be considered when looking at cyclical and secular trends in youth employment or unemployment. Certainly manpower program enrollments are a critical factor. Dynamic factors must be considered along with changes in the static measures. Efforts to assess employment and training programs must rely increasingly on random assignment control group selection techniques. Job deficit estimates from aggregate data must be tested by job guarantee experiments; reservation wage issues must, likewise, be tested to determine the willingness of youth to work under alternative conditions. In other words, there are so many considerations behind the youth employment experience that analysis will have to become increasingly sophisticated to expand the frontiers of knowledge. More data are needed, but better use can be and needs to be made of the data which are already available.

Until there are improvements in data and analytical approaches, it is necessary to fall back on some basic postulates and common sense notions. First, employment programs (including the military) can reduce the job deficit. The relationship between job creation and unemployment reductions is uncertain, but it is tautological that expanding enrollments will mean increasing employment when participants are counted as employed. The best guesses about the universe of need suggest that it is within the realm of possibility to drive down youth unemployment rates to tolerable levels by steady expansion of job creation efforts.

Second, almost all the measured effects will be the direct impacts on counted employment and unemployment. Indirect effects are difficult to determine because of the complexity of measuring net employment and earnings changes over time, as well as the impossibility of extensive demonstrations with randomly selected control groups. Also, gains realized in future years are good for the persons involved but do not change the status of youth; for instance, increased earnings at age twenty to twenty-four will not register for sixteen to nineteen-year-olds under program directed to teenagers.

Third, lacking rigorous confirmation of the impacts of government interventions, there are at least some reasons for optimism. Work during the years of transition does seem to increase success probabilities; better youth jobs yield a better adaptation. Youth with more complete occupational information tend to have an easier time in the labor market. Employment provides an alternate to illegal activity even if the causal effects are difficult to pin down. In other words, the conventional wisdoms underlying youth policy--that more jobs are needed; that the quality of work and supervision matters, and that enrichment with occupational information and counseling makes sense--seem to be headed in the right direction. It remains to be determined whether government-created or accessed jobs have the same impacts as others in the labor market, whether or how much structured, supervised job settings make a difference, as well as the impacts of counseling and occupational information services. Given the difficulties of refined assessment, and the shortcomings of available data, these effects may never be determined convincingly. It is, therefore, necessary to move ahead based on best guesses, and the best guess is that common-sense notions are realistic.

Fourth, the problems of disadvantaged youth and minorities are not simple. The poor and minorities are worse off by almost every dimension; every factor which negatively affects all youth tends to affect them even more. On the other hand, there is evidence from most of the papers that positive actions and developments also have a magnified effect. Government programs and Armed Forces build-ups have their greatest impact on minority and low-income youth. The training received most benefits those who have no other options. It is disadvantaged youth who have the least information about the labor market and might be expected to benefit most from career counseling. Given the size of the minority and disadvantaged subgroups of the unemployed youth population, government interventions on a feasible scale can make a very substantial difference.

Finally, the papers in this volume suggest that we should not expect too much from "knowledge development" efforts. One of the declared purposes of the Youth Employment and Demonstration Projects Act is to determine "what works best for whom." Given the uncertainties of the data and their interpretation, it will be difficult to even assess aggregate YEDPA impacts on measured rates of unemployment much less to make refined estimates of incremental impacts of alternative interventions. The issues most likely to be answered clearly are those having to do with scale--how much is needed and how much can be done based on the experience of areas with more intensive funding--as well as those having to do with direct effects on aspirations, occupational awareness, motivation and the like, which can be assessed by entrance and termination tests. While sophisticated analyses of short- and long-term impacts on employability must be attempted--and randomly asssigned control groups are needed whenever feasible--the fundamental uncertainties of data and the complications of youth labor market activities raise doubts aoubt what can be proven in any rigorous manner. The "state of the art" in youth labor market statistics and interpretation of these statistics does not support overly sophisticated research and assessment (although this should not preclude attempts to use available data as rigorously as possible). It must be accepted that the shortcomings in employment statistics and their interpretation constrain what can be learned about youth employment problems and their solutions.

This volume is one of the products of the "knowledge development" effort implemented under the mandate of the Youth Employment and Demonstration Projects Act of 1977. The knowledge development effort consists of hundreds of separate research, evaluation and demonstration activities which will result in literally thousands of written products. The activities have been structured from the outset so that each is self-standing but also interrelated with a host of other activities. The framework is presented in A Knowledge Development Plan for the Youth Employment and Demonstration Projects Act of 1977, A Knowledge Development Plan for the Youth Initiatives Fiscal 1979 and Completing the Youth Agenda: A Plan for Knowledge Development, Dissemination and Application in Fiscal 1980.

Information is available or will be coming available from the various knowledge development activities to help resolve an almost limitless array of issues, but answers to policy questions will usually require integration and synthesis from a number of separate products, which, in turn, will depend on knowledge and availability of these products. A major shortcoming of past research, evaluation and demonstration activity has been the failure to organize and disseminate the products adequately to assure the full exploitation of the findings. The magnitude and structure of the youth knowledge development effort puts a premium on organization and dissemination of findings.

As part of its knowledge development mandate, therefore, the Office of Youth Programs of the Department of Labor will organize, publish and disseminate the written products of all major research, evaluation and demonstration activities supported directly by or mounted in conjunction with the knowledge development effort. Some of the same products may also be published and disseminated through other channels, but they will be included in the structured series of Youth Knowledge Development Reports in order to facilitate access and integration.

The Youth Knowledge Development Reports, of which this is one, are divided into twelve broad categories:

1. Knowledge Development Framework: The products in this category are concerned with the structure of knowledge development activities, the assessment methodologies which are employed, validation of measurement instruments, the translation of knowledge into policy, and the strategy for disseminating findings.

2. Research on Youth Employment and Employability Development: The products in this category represent analyses of existing data, presentation of findings from new data sources, special studies of dimensions on youth labor market problems and policy analyses.

3. Program Evaluations: The products in this category include impact, process and benefit-cost evaluations of youth programs including the Summer Youth Employment Program, Job Corps, the Young Adult Conservation Corps, Youth Employment and Training Programs, Youth Community Conservation and Improvement Projects, and the Targeted Jobs Tax Credit.

4. Service and Participant Mix: The evaluations and demonstrations summarized in this category concern the matching of different types of youth with different service combinations. This involves experiments with work vs. work plus remediation vs. straight remediation as treatment options. It also includes attempts to mix disadvantaged and more affluent participants, as well as youth with older workers.

5. Education and Training Approaches: The products in this category present the findings of structured experiments to test the impact and effectiveness of various education and vocational training approaches including specific education methodologies for the disadvantaged, alternative education approaches and advanced career training.

6. Pre-Employment and Transition Services: The products in this category present the findings of structured experiments to test the impact and effectiveness of school-to-work transition activities, vocational exploration, job-search assistance and other efforts to better prepare youth for labor market success.

7. Youth Work Experience: The products in this category address the organization of work activities, their output, productive roles for youth and the impacts of various employment approaches.

8. Implementation Issues: This category includes cross-cutting analyses of the practical lessons concerning "how-to-do-it." Issues such as learning curves, replication processes and programmatic "batting averages" will be addressed under this category, as well as the comparative advantages of alternative delivery agents.

9. Design and Organizational Alternatives: The products in this category represent assessments of demonstrations of alternative program and delivery arrangements such as consolidation, year-round preparation for summer programming, the use of incentives and multi-year tracking of individuals.

10. Special Needs Groups: The products in this category present findings on the special problems of and adaptations needed for significant segments including minorities, young mothers, troubled youth, Indochinese refugees and the handicapped.

11. Innovative Approaches: The products in this category present the findings of those activities designed to explore new approaches. The subjects covered include the Youth Incentive Entitlement Pilot Projects, private sector initiatives, the national youth service experiment, and energy initiatives in weatherization, low-head hydroelectric dam restoration, windpower and the like.

12. Institutional Linkages: The products in this category will include studies of institutional arrangements and linkages as well as assessments of demonstration activities to encourage such linkages with education, volunteer groups, drug abuse agencies and the like.

In each of these knowledge development categories, there will be a range of discrete demonstration, research and evaluation activities, focused on different policy, program and analytical issues. For instance, all experimental demonstration projects have both process and impact evaluations, frequently undertaken by different evaluation agents. Findings will be published as they become available so that there will usually be a series of reports as evidence accumulates. To organize these products, each publication is classified in one of the twelve broad knowledge development categories, described in terms of the more specific issue, activity or cluster of activities to which it is addressed, with an identifier of the product and what it represents relative to other products in the demonstration. Hence, the multiple products under a knowledge development activity are closely interrelated and the activities in each broad cluster have significant interconnections.

A range of theoretical assessments have been commissioned to increase understanding of the youth labor market experience. Of particular relevance to the present volume are the following: *A Review of Youth Employment Problems, Programs and Policies*, *Factbook on Youth*, *The Labor Market Experience of 14-21 Year Olds*, *Between Two Worlds: Youth Transition From School to Work*, *The Causes of Youth Unemployment*, and *Findings of the National Longitudinal Survey of Young Americans*.

ROBERT TAGGART
Administrator
Office of Youth Programs

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COUNTING YOUTH:
A COMPARISON OF YOUTH LABOR FORCE STATISTICS IN THE CURRENT POPULATION SURVEY AND THE NATIONAL LONGITUDINAL SURVEYS

By: Michael E. Borus, Frank L. Mott and Gilbert Nestel

ABSTRACT

This study focuses on the accuracy of employment-related measures in the Current Population Survey (CPS) by comparing the CPS estimates with those of another survey--the National Longitudinal Surveys of Labor Force Behavior (NLS) which included approximately 5,000 young men and 5,000 young women between the ages of fourteen to twenty-four when the surveys began in 1966 and 1968, respectively. Since this paper is concerned with youth employment problems, the analysis is restricted to respondents between the ages of sixteen and twenty-one.

Differences between the CPS and NLS estimates of survey week employment-related behavior were found. The NLS labor force participation rates were significantly higher than those of the CPS, particularly among youth attending school. The NLS female unemployment rates were significantly higher than the CPS rates, while for the young men the NLS rates were slightly lower. The NLS data also showed a larger number of the unemployed seeking part-time employment than the CPS. The NLS found higher levels of employment, and among those at work the NLS youth were more likely to work part-time or overtime, depending on their ages. There was no discernible difference in the CPS and NLS estimates of mean hours worked by young women but the corresponding NLS estimates for the young men indicated a slightly higher work activity than the CPS.

The different estimates of the CPS and NLS could arise from differences in survey procedures. The authors believe that lack of self response in the CPS is the most likely explanation for the differences observed.

INTRODUCTION

The focus of this paper is on the accuracy of the information gathered on youth by general population surveys such as the Current Population Survey (CPS).[1] Data accuracy is particularly important for the CPS since this is the primary source of national employment and unemployment statistics. This paper will examine the accuracy of employment-related variables in the CPS by comparing the CPS estimates with those of another survey--two cohorts of the National Longitudinal Surveys of Labor Force Behavior (NLS). The NLS samples included approximately 5,000 young men and 5,000 young women between the ages fourteen to twenty-four when the surveys began in 1966 and 1968, respectively.[2] Since this paper is concerned with youth employment problems we concentrate on the portions of the cohorts between the ages of sixteen and twenty-one. Therefore, the data analyzed are from the 1966, 1967 and 1968 NLS surveys of the young men, the 1968, 1969 and 1970 NLS surveys of the young women, and from tables published in Employment and Earnings for the CPS.[3] All data were gathered by the Census Bureau's CPS interviewers and the current labor force questions and coding were identical.

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[1] This is a revised version of a paper presented to the Conference on Unemployment Statistics and Youth held at U.C.L.A. on February 11-12, 1978. We wish to thank Jean Haurin for her valuable help with this project.

DIFFERENCES IN SURVEY PROCEDURES

There were several differences between the two surveys. First, the NLS interviews the youth directly while the CPS seeks the information about the young person from the head of the household or some other responsible adult. In the majority of the cases the person interviewed by the CPS is a housewife who would most likely be the youth's mother. We have been unable to find much research which explores the effects of nonself response on labor force and employment status questions. An unpublished memorandum by Charles Jones and Robert Aquilino of the Census Bureau indicates that net differences in reports of employment status due to nonself response are not statistically different from zero at the 95 percent confidence level for all males and females, sixteen years of age and older.[4] A similar finding of nonsignificant differences for all adults occurs in the CPS-Census Match for 1970. The CPS-Census study, however, shows that there were significant differences for fourteen- to seventeen-year-olds, and the report goes on to note that there are noticeable differences by age, with the inconsistency dropping substantially as age increases.[5]

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[2] The data are gathered by the U.S. Bureau of the Census and analyzed by the Ohio State University under contract with the Office of Research and Development, ETA, U.S. Department of Labor. The views and opinions in this paper do not necessarily reflect those of any of the above agencies. For further information on the surveys see Herbert S. Parnes, et al., Career Thresholds, Manpower Research Monograph No. 16, vol. 1 (Washington: Government Printing Office, 1970) and John R. Shea, et al., Years for Decision, Manpower Research Monograph No. 24, vol. 1 (Washington: Government Printing Office, 1971).

[3] The reader should also see Parnes, et al., op. cit., Appendix E for an earlier comparison of the 1966 young men's survey and the October 1966 CPS.

Another difference between the CPS and NLS surveys is in the designation of the reference week. The CPS data refer to the specific week which includes the 12th of the month. The NLS data are gathered over a period of several months and refer to the week prior to the one

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4. Charles Jones and Robert Aquilino, "Memorandum for Walter M. Perkins, Subject: Methods Test Phase III: Second Report on the Accuracy of Retrospective Interviewing and Effects of Nonself Response on Labor Force Status," unpublished memorandum within the Bureau of the Census, January 29, 1970.

5. Bureau of the Census, Accuracy of Data for Selected Population Characteristics as Measured by the 1970 CPS-Census March, PHC(E)-11 (Washington: Government Printing Office, 1975), p.11 and Table 33. We should note that the poorer CPS-Census match for the youth may have been due to factors other than nonself response.

in which the interview is conducted. Thus the CPS data are more likely to be affected by seasonal factors. For our comparisons we have selected CPS data for the month in which the NLS conducted the greatest number of interviews but we used all of the NLS respondents.

A third difference relates to the 1966 survey of the young men. Changes in the definitions of employment and unemployment were introduced in the CPS in January, 1967, but were used in the 1966 NLS coding. Thus CPS-NLS differences for that year may partly reflect these definitional differences. The definitions were identical for the other survey years of the young men and all of the surveys of the young women.

Differing ages at interview, particularly among the young men, also could cause variation between the reports of the two data sources. The NLS male sample consists of individuals who attained ages sixteen through twenty-one as of April 1 in the year of interview, whereas, the CPS includes individuals who were in that age group as of the survey month. Since the CPS data refer to November of each year, the NLS sample of the young men is approximately seven months older than the CPS group. In the case of the young women the age difference is considerably smaller. The NLS includes individuals who had attained the given ages as of January 1 of the interview year, while the CPS again uses the month of the interview. However, since the CPS data refer to January or February the age difference is small.

Finally, the longitudinal nature of the NLS may lead it to differ from the CPS. The NLS loses some of its sample from year to year. There is some evidence that there is more attrition among the unemployed,[6] but a multivariate analysis by the authors has shown this is not substantial. Most of the loss is attributable to young men entering the armed forces which removes them from the civilian population. These individuals are excluded from the CPS as well as the NLS. There also may be conditioning of the respondent's answers by repeated questioning. Such changes apparently occur in the CPS which finds different reports of employment status for different rotation groups.[7] Similar conditioning could occur in the later years of the NLS surveys.

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[6] See Frederick A. Zeller, et al., Career Thresholds, Manpower Research Monograph No. 16, Vol. 2, (Washington: Government Printing Office, 1971), Appendix A, and Roger D. Roderick, et al., Years for Decision, Manpower Research Monograph No. 24, Vol. 2 (Washington: Government Printing Office, 1973), pp. 15-20.

RESULTS OF THE CPS-NLS COMPARISON

In this section we compare the levels and rates of labor force participation, employment, and unemployment; the number of hours of work being sought and the duration of unemployment for the unemployed; and the number of hours worked and occupational distributions for the employed as measured by the Current Population Survey and the National Longitudinal Surveys.

Labor force participation. Tables 1 and 2 present the CPS-NLS comparisons of the labor force participation rates for the young men and women, respectively. As is evident from these tables the labor force participation rates were significantly higher in the NLS for the total population and for the two race groups.[8] The CPS labor force participa-

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7. Robert Pearl and Joseph Waksberg, "Effects of Repeated Household Interviews in the Current Population Survey," unpublished paper presented at the 47th National Conference of the American Marketing Association, Dallas, Texas, June 17, 1964.

8. Our use of the word significant means that we have rejected the null hypothesis of equality of proportions in the two surveys. Each of the statistical tests used a two-tail criterion, the type 1 error was 5 percent and the standard error of the estimator was increased by 1.4 to reflect the complex design of the two surveys. The CPS sample is self weighting with each respondent representing 1,200 other individuals in the universe. The estimated sample sizes were obtained by dividing the corresponding universe totals by 1,200. The actual number of sample cases was used for the NLS. We were unable to make tests of significance of the levels presented in Tables 3-6 since we did not have the variances for the CPS data. Comparisons of the two surveys for this information is descriptive.

TABLE 1

CPS AND NLS COMPARISON OF LABOR FORCE PARTICIPATION RATES AND UNEMPLOYMENT RATES OF YOUNG MEN 16 TO 21 YEARS OF AGE, BY RACE AND SCHOOL STATUS, SURVEY WEEKS 1966 TO 1968

Characteristic	1966[a]				1967				1968			
	CPS		NLS[d]		CPS[e]		NLS[f]		CPS[g]		NLS[h]	
	LFPR	UR	LFPR	UR	LFPR	UR	LFPR	UR	LFPR	UR	LFPR	UR
Total	49.8[b]	10.3[c]	68.4	12.6	55.8	11.4	70.4	10.5	54.8	9.6	70.4	9.0
White					55.8	10.0	69.9	9.3	55.1	8.2	70.1	8.3
Nonwhite					55.9	20.7	73.4	17.9	52.5	18.9	72.8	13.8
Major activity was school					36.5	13.1	53.3	17.1	37.1	12.2	53.3	14.3
Major activity not school					91.3	10.2	93.8	4.8	90.7	14.4	92.9	4.3

a Figures for 1966 only include men 16 to 19 years of age.
b December 1966 from Employment and Earnings, Vol. 13, No. 7, January 1967.
c November 1966 from Employment and Earnings, Vol. 13, No. 6, December 1966.
d Survey conducted October 1966 to February 1967.
e November 1967 from Employment and Earnings, Vol. 14, No. 6, December 1967.
f Survey conducted October 1967 to January 1968.
g November 1968 from Employment and Earnings, Vol. 15, No. 6, December 1968.
h Survey conducted October 1968 to January 1969.

TABLE 2

CPS AND NLS COMPARISON OF LABOR FORCE PARTICIPATION RATES AND UNEMPLOYMENT RATES OF YOUNG WOMEN 16 TO 21 YEARS OF AGE, BY RACE AND SCHOOL STATUS, SURVEY WEEKS 1968 TO 1970

Characteristic	1968				1969				1970			
	CPS[a]		NLS[b]		CPS[c]		NLS[d]		CPS[e]		NLS[f]	
	LFPR	UR	LFPR	UR	LFPR	UR	LFPR	UR	LFPR	UR	LFPR	UR
Total	43.8	11.7	50.7	15.8	42.8	9.2	53.2	15.1	45.6	11.6	54.5	16.9
White	44.9	10.5	50.8	14.6	43.4	7.8	53.6	13.6	47.1	10.1	55.3	15.5
Nonwhite	37.0	21.3	49.8	24.1	39.2	19.2	50.4	25.8	36.4	23.1	49.3	27.3
Major activity was school	27.1	12.2	35.3	19.7	26.0	7.9	39.9	19.2	29.3	11.5	41.7	28.9
Major activity not school	62.3	11.4	65.0	13.4	61.7	9.8	64.6	12.7	63.2	11.6	67.0	12.5

[a] February 1968, from *Employment and Earnings*, Vol. 14, No. 9, March 1968.
[b] Survey conducted January 1968 to May 1968.
[c] January 1969, from *Employment and Earnings*, Vol. 15, No. 8, February 1969.
[d] Survey conducted December 1968 to March 1969.
[e] February 1970, from *Employment and Earnings*, Vol. 16, No. 9, March 1970.
[f] Survey conducted, January 1970 to March 1970.

tion rates for young men, sixteen-to twenty-one-year-olds, were approximately 55%, while the corresponding NLS rates were about fifteen percentage points higher. Table 3 translates the NLS labor force participation rates into estimates of the labor force using as the base the CPS estimates of the civilian noninstitutional population. The result is a labor force estimate that includes approximately 1.3 to 1.5 million more young men aged sixteen to twenty-one than was found in the CPS.[9]

The major activity of the youth during the survey week helps to explain the large difference between the two surveys.[10] Among the young men attending school the NLS labor force participation rates were approximately sixteen percentage points higher, while there was no significant difference between surveys in these rates for those young men not in school.

Similar findings occurred among the young women, sixteen to twenty-one years of age. Again the NLS found significantly higher labor force participation rates than the CPS but the differences (between 7 and 10 percentage points) were smaller than for the young men's cohort. Still, based on CPS population figures the NLS found approximately .7 to 1.1 million more labor force participants than the CPS (Table 4). As was the case for the young men, reporting of labor force participation rates was significantly higher in the NLS among the young women whose major activity was school during the survey week. The differences between the rates were three to almost five times larger for the in-school women than for those who had some other major activity (Table 2).

Unemployment. Among young men who were sixteen to twenty-one, there was very little difference in the overall unemployment rate between the two sources of data. This was in part due to offsetting differences;

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[9] We implicitly assume that the attrition from the NLS does not affect the labor force participation rates.

[10] Major activity is defined by the survey respondent in his or her answer to the question "What was...doing most of last week--Working, Keeping house, Going to school, or something else?"

TABLE 3

CPS AND NLS COMPARISON OF THE NUMBER (IN THOUSANDS) OF YOUNG MEN 16 TO 21 YEARS OF AGE IN THE LABOR FORCE, BY EMPLOYMENT STATUS AND RACE, SURVEY WEEKS 1967 AND 1968

Characteristic	1967[a]						1968[a]					
	CPS[b]			NLS[c]			CPS[b]			NLS[c]		
	Total	White	Nonwhite	Total	White	Nonwhite	Total	White	Nonwhite	Total	White	Nonwhite
Civilian noninstitutional population	9,009	7,821	1,188	9,009	7,821	1,188	9,349	8,115	1,234	9,349	8,115	1,234
In labor force	5,031	4,367	664	6,342	5,467	872	5,121	4,473	648	6,582	5,689	898
Employed	4,458	3,931	527	5,676	4,958	716	4,631	4,105	526	5,989	5,217	774
Employed-major activity school	1,849	1,706	143	2,381	2,159	218	2,041	1,884	157	2,454	2,195	256
Employed-major activity not school	2,608	2,224	384	3,296	2,799	498	2,590	2,221	369	3,536	3,023	513
Unemployed	574	437	137	666	508	156	491	368	122	593	472	124
Unemployed-major activity school	279	231	48	489	394	101	284	215	69	428	339	91
Unemployed-major activity not school	295	206	89	166	114	55	206	153	53	165	133	33
Unemployed-seeking full time work	289	199	89	170	118	52	208	156	51	156	117	40
Unemployed-seeking part time work	285	238	48	496	390	104	283	212	71	437	355	84

a Totals may not equal sum of parts due to rounding.

b For data sources see footnotes of Table 1.

c The NLS calculations apply NLS rates from Table 1 to CPS totals for the civilian noninstitutional population.

TABLE 4

CPS AND NLS COMPARISON OF NUMBER (IN THOUSANDS) OF YOUNG WOMEN 16 TO 21 YEARS OF AGE IN THE LABOR FORCE, BY EMPLOYMENT STATUS AND RACE, SURVEY WEEKS 1968 TO 1970

Characteristic	1968[a]						1969[a]					
	CPS			NLS[b]			CPS			NLS[b]		
	Total	White	Nonwhite	Total	White	Nonwhite	Total	White	Nonwhite	Total	White	Nonwhite
Civilian noninstitutional population	10,405	9,041	1,364	10,405	9,041	1,364	10,622	9,201	1,422	10,622	9,201	1,422
In labor force	4,559	4,055	504	5,275	4,593	679	4,550	3,994	557	5,651	4,932	717
Employed	4,026	3,629	397	4,442	3,922	516	4,131	3,681	450	4,798	4,263	532
Employed-major activity school	1,295	1,217	78	1,467	1,309	156	1,342	1,249	93	1,603	1,456	145
Employed-major activity not school	2,731	2,412	319	2,975	2,613	360	2,788	2,432	357	3,196	2,807	387
Unemployed	534	426	108	834	671	164	419	313	107	853	671	185
Unemployed-major activity school	180	149	31	365	316	50	115	85	30	383	327	57
Unemployed-major activity not school	353	276	77	469	355	114	305	223	77	470	344	128
Unemployed-seeking full time work	331	261	70	410	307	103	278	207	71	403	292	112
Unemployed-seeking part time work	203	165	38	424	364	61	141	106	36	450	378	73

(Table continued on next page.)

TABLE 4 continued

Characteristic	1970 [a]					
	CPS			NLS[b]		
	Total	White	Nonwhite	Total	White	Nonwhite
Civilian noninstitutional population	10,755	9,275	1,480	10,755	9,275	1,480
In labor force	4,905	4,366	539	5,861	5,129	730
Employed	4,338	3,924	414	4,871	4,334	530
Employed-major activity school	1,446	1,358	88	1,732	1,589	139
Employed-major activity not school	2,891	2,565	326	3,139	2,744	391
Unemployed	567	442	125	991	795	199
Unemployed-major activity school	188	149	40	542	466	77
Unemployed-major activity not school	379	294	85	449	329	122
Unemployed-seeking full time work	349	268	81	506	382	126
Unemployed-seeking part time work	218	174	44	485	413	73

a Totals may not equal sum of parts due to rounding.

b For data sources see footnotes of Table 2.

c The NLS calculations apply NLS rates from Table 2 to CPS totals for the civilian noninstitutional population.

the NLS had higher unemployment rates for those youth who listed their major activity as school,[11] while the CPS had significantly higher unemployment rates for young men with another major activity. The CPS also had significantly higher unemployment rates than the NLS for nonwhite youth in 1968.[12]

The women in the NLS reported significantly higher unemployment rates for the entire group and for those attending school. For the three years studied, the NLS reported between 300,000 and 434,000 more unemployed young women than did the CPS. These were increases of 56% to 104% in the number of young women who were classified as unemployed. Due to the substantially higher unemployment rates in the NLS, approximately 40% of the increased labor force participants found among young women by the NLS survey were unemployed (Table 4).

Approximately 100,000 more young men were classified as unemployed in the NLS than in the CPS as a result of the higher labor force participation rates in the former survey. Yet, as is seen in the last two rows of Table 3, the CPS reported substantially more young men seeking full-time employment. Whereas about half of the CPS sample said they were looking for full-time work, only 25% of the NLS sought a full-time job. This difference could be due to the larger number of unemployed in the CPS sample who did not list school as their major activity in the survey

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11. The difference was statistically significant in 1967 but was not in 1968.

12. The NLS sample did not interview persons who were in the armed forces at the time of the first survey but who returned to civilian life in a subsequent year. To the extent that these veterans are more likely to participate in the labor force or to experience unemployment the corresponding NLS rates would be lower than the CPS rates. Since the NLS labor force participation rates exceeded the CPS estimates we feel that this difference in survey design is not important for this variable. The lower unemployment rate in the NLS for nonwhite youth, however, could be caused by this difference.

week. (We calculated that the CPS contained 50 to 130 thousand more unemployed young men who said that something other than school was their major activity.)[13] Almost all of these individuals wanted full-time jobs. On the other hand, the CPS had many fewer unemployed whose major activity was school and who were primarily interested in part-time jobs. Those answering that school was their major activity had much lower labor force participation and somewhat lower unemployment rates in the CPS (Table 1).

Similar to the men, there were substantially more unemployed young women seeking part-time work in the NLS than in the CPS; however, the NLS indicated more young women seeking full-time employment as well (Table 4). The higher labor force participation and unemployment rates in the NLS for women reporting school and women reporting some other major activity in the survey week account for the substantially greater numbers of unemployed women in the NLS seeking both full-time and part-time jobs.

There were no discernible differences in the reports by the young men in the CPS and NLS on duration of unemployment. Approximately the same proportions in both surveys reported being unemployed for less than five weeks and fifteen or more weeks. The young women in the NLS, on the other hand, reported a considerably shorter duration of unemployment during 1968 and 1970, but had somewhat lower percentages reporting short periods of unemployment during 1969. This difference may have been due to the use of January data for the CPS in 1969 and February data for 1968 and 1970. Because of the large month-to-month variation in the CPS reports of duration we hesitate to draw any conclusion.

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13. The CPS and NLS had about the same labor force participation rates for this group but the unemployment rate was much higher in the CPS.

Employment. The NLS found significantly higher levels of employment than did the CPS--about 25% more employed young men and 10% more employed young women. For example, the NLS estimates of youth employment in 1968 exceeded those of the CPS by approximately 1.8 million, of whom roughly three-quarters were young men. The differences in employment were somewhat more prevalent among the nonwhite segments of both NLS samples and among those persons listing their major activity as something other than school.

The distribution of hours worked during the survey week also was substantially different in the two surveys. The NLS found more part-time workers and workers employed overtime (in excess of 40 hours) than did the CPS (Tables 5 and 6). The number of sixteen to twenty-one year old youth employed for more than 40 hours was from 50% to 100% greater in the NLS than in the CPS.

The differences in the two survey's reports of the number of hours worked by youth were related to the age of the respondents. Workers who were sixteen and seventeen years of age were more likely to be working only part-time. Therefore, of the additional workers in these ages reported by the NLS, approximately 55% of the young men and 85% of the young women were employed less than 35 hours a week. On the other hand, the older youth were more likely to include persons working overtime, and the NLS found many more eighteen- to twenty-one-year-olds working for over 40 hours per week as compared with the CPS. In some cases the difference in the number working overtime exceeded the total numerical differences between the two samples for this age group. Finally, since the NLS reported more youth working overtime and a slightly smaller percentage working part-time (particularly among the men), the NLS found somewhat higher mean hours of work for the entire sample and for workers on full-time schedules. The differences were more pronounced among the young men, probably reflecting the smaller percentage working part-time.[14]

SUMMARY AND CONCLUSIONS

We have found that the NLS when compared to the CPS reports:

1) Significantly higher labor force participation among young men and women, particularly among those whose major activity is attending school. These differences occurred in both white and nonwhite groups.
2) Significantly higher unemployment rates for young women and approximately the same rates for young men. For both young men and women the number of unemployed is higher.
3) More of the unemployed are seeking part-time employment.
4) Considerably higher levels of employment, particularly for the young men.
5) The youth are more likely to work either part-time or overtime depending on their age, and mean hours worked by the young men in the survey week are somewhat higher.

Obviously, we cannot say conclusively that the NLS reports are more accurate than those of the CPS in the light of the differences in the two surveys mentioned earlier. If, however, the NLS is correct these findings have significant implications. For 1968, the CPS youth labor force would have been understated by almost one-fourth or nearly 2.2 million young men and women. Employment would have been approximately 1.75 million higher and unemployment would have increased by 400,000 (an increase of almost 40 percent over the CPS reported number). This would mean that there was a sizable "undercount" by the CPS.

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[14] Finally, the single digit occupational distributions of the two samples were very similar. There is no evidence that the additional workers reported in the NLS were concentrated in any particular occupational group.

Although obviously somewhat biased judges, we tend to believe the NLS estimates. The pattern of reported differences appears consistent over time, tending to negate the possibility that the longitudinal nature of the studies or the difference in definitions during 1966 leads to the differences in findings for the two surveys. The fact that the average NLS respondent was seven months older than his CPS counterpart, while conceivably causing some of the observed differences, could not have accounted for all of the greater labor force participation found in the NLS. As a check, we reran sections of Table 1 restricting the NLS sample to young men fifteen through twenty years of age and compared the findings with the CPS results for men sixteen through twenty-one years old. Even though the NLS sample was now younger and the difference between the two surveys narrowed, we still found higher labor force participation for the NLS.[15] We also conducted some analyses which restricted the NLS sample to interviews collected in the same month as the CPS data. The results of such a restriction on the NLS data did not appear to make sizeable differences in the estimates of the employment-related variables.

At the same time, the nature of the differences we observed between the two samples is consistent with what one would expect due to problems of nonself response. When the youth are in school one could expect that their mothers would consider them out of the labor force. The mother would tend to disregard or be unaware of part-time employment and might not even know of sporadic attempts by their children to look for employment. It is also quite possible that the mother would not know of overtime work in the survey week and would report the standard full-time schedule. Finally, for those older youths who are only tangentially attached to the household (e.g., they are away at college or more in and out of the household depending on their financial state and familial

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15. We were also able to use the age attained at survey month for the young women in some special runs. These too did not noticeably alter the conclusion.

relationships), the mother may have no idea of their employment status.[16]

While our leanings are toward the NLS data, there are at least two possibilities for testing the accuracy of the data sets. First, the Census Bureau could expand its Methods Test Panel and seek a larger sample of young self respondents to reinterview after another member of the household has provided labor force data. The expansion would have to be substantial, however, in order to have a large enough sample in this limited age group.

Second, if the NLS estimates are more accurate and there are more youth in the labor force seeking employment than the CPS shows, there may be some indirect evidence which we can observe over the next year. The new youth programs under the Youth Employment and Demonstration Projects Act of 1977 (YEDPA) will provide roughly 200,000 additional youth slots.[17] If the CPS is correct the filling of these slots would come primarily from among the unemployed. On the other hand, if many of the people the CPS says are out of the labor force are really seeking work as the NLS implies, the slots will be filled without having much impact on the CPS measure of youth unemployment. We should be prepared for the YEDPA programs to "fail" to lower unemployment if in fact we are presently not counting youth correctly.

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[16] The fact that we found smaller differences in labor force participation rates among the young women is also consistent with the nonself response hypothesis, since these individuals are more likely than their male counterparts to be in their own household and, thus, are more likely to be reporting for themselves.

[17] The estimate is very inexact since it is not clear how the CETA prime sponsors will divide their funds between in-school and out-of-school programs.

TABLE 5

CPS AND NLS COMPARISON OF THE NUMBER (IN THOUSANDS) OF YOUNG MEN AT WORK IN NONAGRICULTURAL INDUSTRIES, BY HOURS WORKED AND AGE, SURVEY WEEKS 1967 AND 1968[a]

Characteristic	1967		1968	
	CPS[b]	NLS[c]	CPS[b]	NLS[c]
Total at work				
16-17	1,064	1,618	1,109	1,726
18-19	1,396	1,647	1,565	1,956
20-21	1,576	1,753	1,531	1,619
16-21	4,036	5,018	4,205	5,301
On part time schedule				
16-17	883	1,183	947	1,284
18-19	555	600	665	681
20-21	351	395	382	357
16-21	1,789	2,178	1,994	2,322
On full time schedule				
16-17	176	435	162	442
18-19	841	1,047	900	1,275
20-21	1,230	1,358	1,150	1,262
16-21	2,247	2,840	2,211	2,979
Working over 40 hours				
16-17	50	146	39	180
18-19	277	519	290	687
20-21	468	690	389	654
16-21	795	1,355	718	1,521
Mean hours, all at work				
16-17	19	23	19	24
18-19	33	35	31	35
20-21	40	41	39	41
16-21	31	32	30	33
Mean hours, those on full time schedule				
16-17	41	42	40	43
18-19	43	45	41	45
20-21	44	46	43	45
16-21	43	44	42	45

[a] Totals may not equal sum of parts due to rounding.

[b] For data sources see footnotes of Table 1.

[c] The NLS calculations apply NLS rates from Table 1 to CPS totals for the civilian noninstitutional population.

TABLE 6

CPS AND NLS COMPARISON OF THE NUMBER (IN THOUSANDS) OF YOUNG WOMEN AT WORK IN NONAGRICULTURAL INDUSTRIES, BY HOURS WORKED AND AGE, SURVEY WEEKS 1968 TO 1970[a]

Characteristics	1968		1969		1970	
	CPS[b]	NLS[c]	CPS[b]	NLS[c]	CPS[b]	NLS[c]
Total at work						
16-17	773	1,035	789	1,209	969	1,272
18-19	1,462	1,583	1,419	1,538	1,486	1,510
20-21	1,647	1,618	1,773	1,740	1,726	1,877
16-21	3,882	4,236	3,981	4,487	4,181	4,659
On part time schedule						
16-17	708	916	730	1,121	859	1,112
18-19	515	579	532	563	602	598
20-21	374	369	400	433	476	480
16-21	1,598	1,864	1,662	2,118	1,936	2,190
On full time schedule						
16-17	65	120	59	88	110	160
18-19	947	1,004	887	977	884	912
20-21	1,273	1,248	1,373	1,299	1,250	1,397
16-21	2,284	2,372	2,319	2,365	2,245	2,469
Working over 40 hours						
16-17	12	46	11	22	20	38
18-19	143	230	126	234	110	228
20-21	199	313	226	277	176	344
16-21	353	589	362	534	306	610
Mean hours, all at work						
16-17	14	15	14	14	15	16
18-19	31	31	31	30	30	30
20-21	36	36	36	35	35	36
16-21	29	29	29	27	28	28
Mean hours, those on full time schedule						
16-17	38	39	36	39	38	37
18-19	39	40	40	39	39	40
20-21	40	41	40	39	39	40
16-21	40	40	40	39	39	40

a Totals may not equal sum of parts due to rounding.

b For data sources see footnotes of Table 2.

c The NLS calculations apply NLS rates from Table 2 to CPS totals for the civilian noninstitutional population.

THE VOLATILITY OF THE TEENAGE LABOR MARKET: LABOR FORCE ENTRY, EXIT, AND UNEMPLOYMENT FLOWS

By: Ralph E. Smith and Jean E. Vanski

ABSTRACT

Gross flow tabulations from the Current Population Survey provide estimates of the number of people who move between unemployment, employment, and non-participation in the labor force from one month to the next. This paper describes these data and their potential value for analyzing labor market dynamics and uses the data for teenagers to analyze recent cyclical, trend, and seasonal patterns in their unemployment and labor force participation rates.

It is shown that the gross flow series provide important information about the youth labor market, supplementing the information obtained from conventional labor force series. Analysis of data from the 1967-1977 period suggests, for example, that the chronically high unemployment rate of teenagers is directly linked to their large flows through the labor market. In addition, the deterioration in the relative position of black teenagers during this period is a result of both secular and cyclical differences in their behavior. Not only are their rates of labor force entry failing to keep pace with those of white teenagers, but also their success in finding work is decreasing more rapidly, further decreasing their labor force participation. The widening gap between the unemployment rates of the two groups directly contributes to the widening gap in their participation rates.

INTRODUCTION

High unemployment rates among teenagers, especially black teenagers, are given considerable attention by economic policymakers and analysts. Debates often focus on the extent to which the rates really reflect a serious problem and, if they do, what can be done to reduce that problem. Discussions of teenage unemployment inevitably lead to consideration of the high turnover and labor force mobility of youth. Those who minimize the seriousness of youth unemployment point out that much of it is frictional, resulting from teenagers moving in and out of the labor force. The special job needs of many teenagers, as they combine school and work, make it more difficult to design programs to reduce their unemployment.

The dynamic character of the youth labor market is not reflected very well in the conventional unemployment tabulations from the Current Population Survey (CPS) published by the Department of Labor. These data series provide the net changes from one month to the next in unemployment, employment, and non-participation, but give little indication of the much larger gross movements that normally occur between each of the three labor market states. For example, during 1976 the published monthly series suggested a fairly static labor market in which between 18% and 20% of teenagers who participated in the labor force were unemployed. But underlying this static picture was a labor force in a constant state of change: each month about half of all unemployed teenagers either found jobs or left the labor force, only to be replaced by a roughly equal number of teenagers who previously were outside the labor force or were employed.

A little-used source of information about these labor market dynamics is the unpublished gross flow series from the CPS, maintained by the Bureau of Labor Statistics. Based on the responses of individuals who were in the CPS sample in consecutive months, these tabulations provide estimates of the number of people who move between unemployment, employment, and non-participation in the labor force each month. Previously, we have used these gross flow data, disaggregated by age, race, and sex, to estimate a monthly model of the U.S. labor market and to simulate the impact of alternative macroeconomic time paths on the labor market status of each group.[1] For this conference, we have updated the equations that go into this model for teenagers to reflect the experience of the recent recession and the beginning of the recovery.

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[1] The model simulates the labor force behavior of sixteen demographic groups including white males, white females, nonwhite males, and nonwhite females, each disaggregated by age groups (16-19; 20-24; 25-59; and 60 and over). Blacks comprise about 90% of the nonwhite categories. For a description of this model, see Ralph E. Smith, "A Simulation Model of the Demographic Composition of Employment, Unemployment, and Labor Force Participation," in Ronald G. Ehrenberg, Research in Labor Economics, vol. 1 (1977), pp.259-303.

Our paper has two purposes. First, we seek to alert analysts to the potential value (and limitations) of the CPS gross flow data for understanding the teenage labor market. Second, we wish to report some of our own research, which uses these data to analyze recent cyclical, trend, and seasonal patterns of teenage unemployment and labor force participation.

Since the gross flow data are not widely known, the first section presents a description of the data, its problems, and previous uses. We have found it necessary to adjust the data because of inconsistencies with the net changes in the conventional labor market series. Our adjustment technique and the size of these adjustments for teenagers are reported. The second section presents new estimates of the cyclical, secular, and seasonal patterns in the labor market activities of teenagers, by race and sex. The final section presents our conclusions and recommendations.

LABOR FORCE GROSS FLOW DATA

The analysis reported in this paper is based on data describing gross changes in the labor force. The data are derived from the Current Population Survey (CPS) which provides the Bureau of Labor Statistics' monthly estimates of labor force status. Their value rests in their ability to complement the information on monthly changes in labor force levels coming from the full CPS with information on short run market dynamics. This section of the paper will describe the derivation of the gross flow data and their potential value for research on labor market behavior; it will discuss reported errors in the data which have limited their use; and, finally, it will provide a description of a technique which has been developed to compensate for these errors.

Derivation of Gross Flow Data

Each month approximately 56,000 households are interviewed in the Current Population Survey to determine the labor force status of the civilian non-institutional population aged sixteen and over.

The CPS is constructed as a panel survey with each household remaining in the sample for four consecutive months, being removed for the next eight months, and reentering for another four months. As the households rotate in and out of the sample, potentially 75% of them are common from month-to-month. These households form the basis for gross flow data.[2]

Since individuals within these households are in the sample for two consecutive months, it is possible to match their current and previous labor force status. Aggregating data on individuals into civilian population groups, P_i, the gross change tabulations provide estimates of the size of flows between those who were employed, E_i, unemployed, U_i, and not in the labor force, N_i. Throughout the remainder of this paper, the gross flow data will be denoted by an ordered pair of letters representing preceding and current month's labor force status. For example, UN_i, will denote those people in the i^{th} population group who were unemployed last month, but left the labor force in the current month.

The gross change data provide information on the degree of mobility in the labor market as people enter or leave the labor force or move between employment and unemployment. This is particularly valuable for population groups with relatively weak labor force attachment, such as teenagers. Figure 1 illustrates this point by showing the average 1976 gross flows for sixteen to nineteen-year olds which help generate teenage levels of employment, unemployment and nonlabor force status as reported by the CPS.

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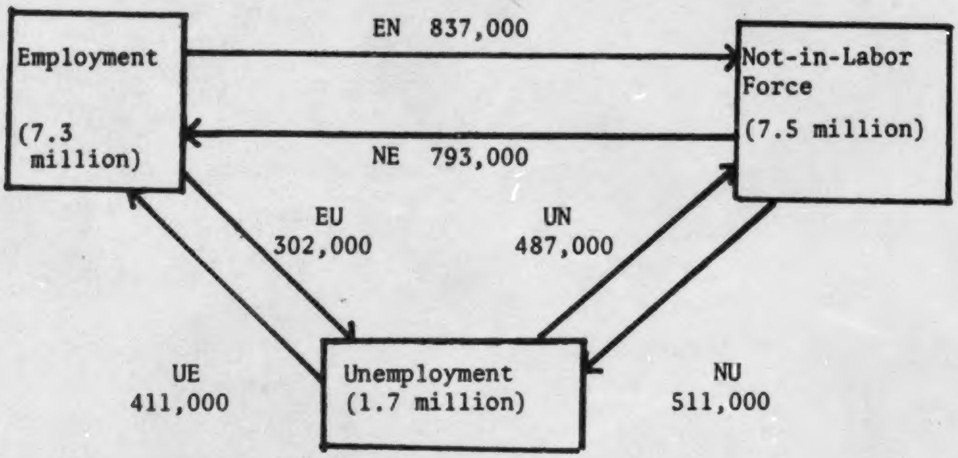
[2] We are grateful for the cooperation of Bureau of Labor Statistics staff in making these data available. More comprehensive descriptions of the data and their potential for research on labor market dynamics can be found in H. Hilaski, "The Status of Research on Gross Changes in the Labor Force," Employment and Earnings, October 1968.

Figure 1

Labor Market Stocks and Monthly Flows: 16-19 Year Olds
(1976 Monthly Averages)



The volatility of the youth labor market is obvious from these statistics. For example, on average in 1976, approximately 900,000 teens or 53% of those unemployed one month either found a job or decided to leave the labor market the next month. The average monthly figures also show that approximately 1.3 million or 9% of the teenage labor force leaves the labor market each month, while another 1.3 million or 18% of those out of the labor market decide to enter.

For sixteen to nineteen-year olds, these large inter-labor market flows are dominated by transitions between school and work. Seasonal patterns in flow data provide a better idea of the vast numbers of people who change labor force states each month to generate the changes in stocks reported by the Current Population Survey. In June, when most teenagers are out of school and looking for summer employment, CPS statistics show the size of their labor force increasing by 1.9 million. The gross flow tabulations indicate that this change is generated by status changes of 3.7 million teenagers moving between states, with 2.8 million either becoming employed or unemployed when they are not in the labor force in the preceding month, and with almost 1 million deciding to drop out of the labor force for the summer. The data also indicate that, although the large increase in unemployment in June is primarily due to a dramatic increase into the labor force, it is aided by reductions in flows out of unemployment. In September, when school reopens, the CPS labor force declines by 2.1 million teenagers, which is caused by 3.1 million withdrawing from the labor force and 1 million entering it.

While some of these observations are intuitive, they do suggest the potential the data have for providing insights into trends and cyclical patterns of labor force participation; determinants of unemployment among various labor force groups; and information on the relative impact of discouragement and labor force withdrawal on different demographic groups.

Errors in Data

Despite their potential for analyzing labor market dynamics, gross flow data have gone unpublished since 1952 and their use in research has been sporadic due to serious reservations concerning their reliability. Problems with the data are generally divided into two components: sampling variability and response variability.

Of the two possible sources of error, sampling variability is the less serious, and is the result of reducing the full CPS sample to only those individuals who are interviewed for two consecutive months. By the time gross flow data are tabulated, sample size is reduced to approximately 65% of the full CPS survey. The exclusion of nonidenticals, who either fail to respond, are absent from home during the survey week or who have moved from the household, make random error more prominent in gross flow than stock data. It should be noted, however, that if nonidenticals differ in characteristics from identical individuals, this reduction in sample size could cause the error to be systematic.[3] For example, teenagers who leave home by the time they are nineteen may be more prone to be in the labor force than those who remain with their families. Because they have moved from the interview unit, these youth will be underrepresented in the gross flow sample, and those remaining in the sample will tend to understate labor force attachment.

Response variability, which is the result of either misclassification of reported labor market status or "rotation group bias," is considered more important than sampling variability. Misclassification errors which tend to cancel when determining net changes in labor force stocks are a more serious problem with gross change data. In the past, the effect of misclassification has been assumed to be random with an overall effect of inflating the flows depicting movement between labor force states. It is hard to determine the magnitude or nature of the misclassification problem for teenagers. The fact that an adult usually reports labor force status for teenagers in a household and that it is often hard to determine the exact status of a teenager's labor force attachment could serve either to exaggerate movements between employment states or to suggest no change when, in fact, movements would be indicated if the youth had been directly surveyed.

The second cause of response variability is "rotation group bias"--a problem which generates systematic errors and which is related specifically to panel surveys. The hypothesis concerning this source of error is that the process of reinterview conditions individuals and patterns their response over time.[4] The eight rotation groups comprising the CPS, which differ only with respect to time in sample, consistently demonstrate different labor force characteristics. Census Bureau staff have been aware of the problem since the 1950s, but little is known about why it exists or the extent of its effect on the data either qualitatively or quantitatively. It is known, however, that groups newly entering the sample show higher levels of unemployment and marginal types of employment such as part-time work, unpaid family help, and domestics--those categories most likely to contain substantial numbers of people with weak labor force attachment. In subsequent months, a number of the individuals in these groups, who initially reported being employed or unemployed, report being out of the labor force. This type of change tends to exaggerate the size of the flows leaving the labor force and, therefore, understates gross change estimates of participation. Given the marginal attachment of teenagers to the labor market, it is possible that misclassification and rotation group bias problems contribute significantly to errors in measuring their changes in labor force status.

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[3] See Susan Palmer, Bureau of the Census, "On the Character and Influence of Nonresponse in the Current Population Survey," Proceedings of the Social Statistics Section, 1967, American Statistical Association, pp. 73-80.

[4] See Barbara A. Bailar, "The Effects of Rotation Group Bias on Estimates from Panel Studies," Journal of the American Statistical Association, vol. 70 (March 1975), pp. 23-30.

Data Adjustment

Despite the sampling and response variability problems, gross flow data have been used by researchers to analyze labor market behavior. The data have produced intuitively acceptable results and have supplied a new dimension on market dynamics unavailable in other data bases. Earlier work with gross flow data, however, concentrated on cyclical variability of unemployment and did not concentrate on participation behavior which would suffer much more from the problems associated with rotation group bias.[5]

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[5] See W. Lee Hansen. "The Cyclical Sensitivity of Labor Supply," American Economic Review, (June 1941), pp. 299-309; George L. Perry, "Unemployment Flows in the U.S. Labor Market," Brookings Paper on Economic Activity, vol. 2 (1972), pp. 245-78;Claire B. Vickery, "Why Unemployment Rates Differ by Race and Sex," unpublished Ph.D. dissertation, University of Maryland, 1973; Thomas F. Bradshaw, Bureau of Labor Statistics, "Employment in Perspective: A Cyclical Analysis of Gross Flows in the Labor Force," Report 508,

The bias problems in the data cannot be easily explained and no one has yet determined their magnitude or exact effect on the various transition flows. However, the fact that they exist can be easily ascertained by comparing net changes in labor force stocks derived from the CPS with those derived from gross flow data. If one were to accept the accuracy of the full CPS,[6] failure of the gross flow data to replicate these changes is an obvious warning that there are problems measuring the flows. In some instances, even the direction of the change is inconsistent. While a portion of the problem is attributable to random sampling error, the discrepancies do suggest that systematic errors are present and have to be accounted for when using the data.[7]

The procedure developed to adjust the gross flow data does not attempt to explain the causes of error; it merely attempts to force consistency with the data coming from the full CPS survey.[8] Using multivariate regression analysis, monthly changes in employment status measured by gross flow data are regressed against the same changes measured by the CPS. If earlier conjectures on the nature of biases in the data are correct, the results of the procedure would be

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5. (cont.) 1977; Richard S. Toikka, "A Markovian Model of Labor Market Decisions by Workers," The American Economic Review, vol. 66 (December 1976), pp. 821-34.

[6] The rotation group bias problem affecting gross change data also affect the estimates of monthly levels of labor force statistics reported in the full CPS. If it can be assumed that bias patterns across the eight survey panels are consistent from one month to the next, the effects of the bias on the full sample will cancel in computing month to month changes. It is the "unbiased" month changes which are used in the adjustment procedure. Levels of labor force stocks in the full CPS are affected by rotation group bias. See Bailar, op. cit.

[7] See Stuart H. Altman, "Factors Affecting the Unemployment of Married Women: A Study of the Dynamics Affecting the Labor Force Behavior of Secondary Family Workers," unpublished Ph.D. dissertation, University of California at Los Angeles, 1964.

[8] Smith, op. cit.

a reduction of the flow variables which depict movements between employment, unemployment and non-labor force status all of which tend to be exaggerated by misclassification errors. The most pronounced reductions should be in the two flows out of the labor force, EN and UN, which are also inflated by rotation group bias.

Since the gross flow subsample does not take account of monthly increases in population which result from new population entrants or net immigration, the CPS changes used in the adjustment procedure were modified to exclude population growth. Adjusted changes in stocks from the CPS were constructed using the previous month's stock levels weighted by a ratio of current to preceding month's population. This assumes that entrants to the CPS sample demonstrate the same characteristics as those already in the population group. The changes in stocks measured by gross flows are computed by calculating the new inflow to those stocks. The relevant identities for each group become:

$$(1)\quad \Delta E_i = E_i - E_{i,-1} \cdot \left(\frac{P_i}{P_{i,-1}}\right) = UE_i + NE_i - EU_i - EN_i,$$

$$(2)\quad \Delta U_i = U_i - U_{i,-1} \cdot \left(\frac{P_i}{P_{i,-1}}\right) = EU_i + NU_i - UE_i - UN_i,$$

$$\text{and, }(3)\quad \Delta N_i = N_i - N_{i,-1} \cdot \left(\frac{P_i}{P_{i,-1}}\right) = EN_i + UN_i - NE_i - NU_i,$$

with the left side estimated from the full CPS and the right from gross flow data.

The aim of the procedure is to obtain a correction factor on each flow variable. As can be seen above, each flow appears in two identity relationships. We therefore pooled observations, and ran a single regression based on data from June 1967 through September 1977, simultaneously estimating changes in employment, unemployment and nonparticipation and producing one adjustment factor for each flow.

The procedure has gone through a number of modifications. Currently it produces cyclical correction factors which vary with aggregate labor market conditions, represented by the aggregate unemployment rate lagged one period. The resulting relationship between an adjusted flow, f', and an observed gross flow, f, thus becomes:

$$(4) \quad f' = \left(B_f + B_{If} \cdot \left(\frac{U}{L}\right)_{-1}\right) f,$$

where B_f and B_{If} are coefficients from a constrained identity regression.[9]

Potentially there is a problem applying the procedure to groups as small as the four teenage groups being analyzed in this paper. The smaller the population, the more likely it will be that random error will dominate the systematic error we are attempting to eliminate. As a consequence, among sixteen- to nineteen-year olds, nonwhites will suffer more than whites because of sample size. Among the flow variables, the flows between employment and unemployment are the most affected since youth behavior is dominated by their labor force withdrawal and reentry.

Table 1 reports average corrections applied to the six gross flow variables for the labor force groups analyzed in the next section. The adult white male group is used as a point of comparison. In four of the six flows for this group there is a substantial reduction in the reported statistics. The implied overstatement of measured data is consistent with the hypothesis that misclassification error exaggerates the number of people changing labor force states. The severe reduction in EN is consistent with hypotheses on rotation group bias. We have no explanation for the seeming undermeasurement of flows between employment and unemployment (EU) and between unemployment and not in the labor force (UN). This is especially true for UN since it should be influenced by the same rotation group bias problems affecting the employment to not in the labor force flow. We have less confidence in the parameter estimates for the correction on UN since relatively few white male adults exit the labor force from unemployment.

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[9] For a more complete description of the procedure see Charles C. Holt, et al., "Labor Markets, Inflation and Manpower Policies," Final Report to the U.S. Department of Labor, Appendix C, May 1975.

The correction technique generally yields smaller bias adjustments for teenagers than for white male adults. With the exception of the small nonwhite female cohort, which demonstrates the lowest measured inter-labor force mobility, most flows are adjusted to within 15% of their observed value. While this may result from more accurate data for this group, it is more likely the result of random measurement error due to small sample size of offsetting measurement problems unique to determining the labor force status of teenagers. The suggested reduction in the UN flow is again consistent with rotation group bias problems; the increase in the EN flow is not. However, as indicated earlier, no one truly understands the nature of biases in the data and the technique used for its adjustment only provides a statistical reconciliation of gross flow and CPS stock data. It does not provide any reasons for discrepancies.

TABLE 1
AVERAGE GROSS CHANGE CORRECTION FACTORS
July 1967 to September 1977[a]

Group/Flow	EN	EU	UN	NU	UE	NE
16-19 year olds:						
White Males	1.02	1.10	1.05	1.05	.95	1.02
White Females	1.06	.99	.89	1.06	.98	.98
Nonwhite Males	1.00	.91	.97	1.03	.89	.98
Nonwhite Females	1.03	.71	.89	1.10	1.20	.87
25-59 year olds:						
White Males	.56	1.05	1.17	.72	.92	.78

a. Based on unpublished estimates by the authors.

TEENAGE LABOR MARKET PATTERNS: INSIGHTS FROM GROSS FLOW DATA

The remainder of this paper focusses on an examination of the labor market behavior of teenagers during the past decade. Several patterns observed with conventional labor force and unemployment series are examined more closely with estimates based on the adjusted gross flow data:

(1) The labor force participation rates of white teenagers, particularly females, have risen sharply, while those of black male teenagers fell and those of black female teenagers were fairly stable.

(2) Each teenage group's participation rate exhibits some cyclical variation. Between 1974 and 1975, as the aggregate unemployment rate rose by three percentage points, the secular increases in the participation rates of white male and female teens were reversed and the decline in black male participation was accelerated. The participation of black female teens did increase in this recession, although it fell three points in the milder 1971 recession.

(3) Unemployment rates of every teenage group were much higher than adult unemployment rates throughout the decade and were considerably worsened by the recession.

(4) The position of black teenagers relative to white teenagers, measured by their unemployment rates and their participation rates, has dramatically deteriorated over the decade. The recession widened the gap still further.

These and other patterns in the regular CPS series are also found in the gross flow data and, to some extent, are explained by them. Net increases in unemployment occur when the gross flows into unemployment exceed the flows out. Chronic differences in unemployment rates between two groups either reflect differences in their vulnerability to unemployment (the probability of becoming unemployed) or in their propensity to leave unemployment, or both. Similar reasoning can be used to account for changes or differences in participation patterns.

The equations reported in the remainder of this section are taken from our gross flow model of the labor market and depict determinants of the proportion of a group's population moving from one labor market state to another. All transitions affect the group's unemployment or labor force size directly or indirectly. The transition rates are modeled as group probabilities which are related to aggregate labor market conditions, a secular trend, and a set of seasonals. The means of these rates for the past decade are provided in the Appendix.

When analyzing regression estimates based on gross change data, it must be remembered that the data suffer much more from sample variability than the stock data reported in the full CPS. The size of the gross flow subsample is only about 67% of that of the CPS due to the requirements of matching individual responses for consecutive months. The relatively small populations of the race/sex teenage cohorts reported in this paper further exacerbates the problem. This problem increases the variance of our parameter estimates. However, for purposes of this paper, we are not so much interested in the numerical value of parameters as in the importance of aggregate labor market conditions, seasonals and time trends in explaining the labor force behavior of sixteen- to nineteen-year olds over the past decade. Negative or positive responses to explanatory variables and their level of significance can, in themselves, provide explanations for labor force participation behavior and cyclical response not available from the stock data.

Transition Probability Equations

The analysis begins with the estimation of two sets of equations that depict the movement of people into the labor force. As illustrated by Figure 1, the number of teenagers who enter the labor force in a month is determined by the number in the potential entrant pool (i.e, not in the labor force) and their probability of entry. Some entrants are unemployed at the time of the first survey in which they are in the labor force; others have either entered with jobs or found them between survey periods. Both the decision to enter and the outcome of that decision may be affected by cyclical and seasonal factors and may change over time.

Table 2 and 3 report the equations used to estimate each group's monthly probability of labor force entry and the proportion of the entrants that have jobs ("successful labor force entry"). In each of these equations, as well as the ones that follow, the transition probability is expressed as a multiplicative function of the aggregate job vacancy-unemployment ratio lagged one month, an exponential time trend, and a set of seasonal dummies. Estimates are reported for each of the four race/sex teenage groups and, for comparison, for prime-age white males. The estimation period is July 1967 through September 1977.

In the labor force entry equation (Table 2), the dependent variable is the log of the proportion of the group's nonparticipants who entered the civilian labor force since the preceding month's survey period. The gross flow data used in the numerator were first corrected with the procedures described in the preceding section. The aggregate labor market variable is the log of the ratio of the Conference Board's Help-Wanted Index and the CPS aggregate unemployment series, both seasonally unadjusted and lagged by one month. The trend term T takes on a value of one in July, 1967 and is incremented by one each successive month. Eleven seasonal dummies, corresponding to January through November, each take the value of one or zero, with the coefficient in December constrained to equal the negative of the sum of the other coefficients. ξ_{nli} is a random error term with zero mean and constant variance. The numbers in parenthesis below the parameter estimates are corresponding T-statistics. Each column also reports the regression coefficient of determination corrected for degrees of freedom, $\bar{R}^2$; the standard error of estimation, S.E.; and the Durbin-Watson Statistic, D.W. Significance at the .05 level and the .01 level are indicated by a single asterisk and a double asterisk respectively. The joint influence of the seasonals is measured by the F-statistic.

TABLE 2

PARAMETERS DETERMINING PROBABILITY OF LABOR FORCE ENTRY

$$\ln(NL_i/N_{i,-1}) = \ln k_{nli} + \beta_{nli}\ln(V/U)_{-1} + g_{nli}T + S1 + . . . + S11 + \epsilon_{nli}$$

	(1) WHITE MALES 16-19	(2) WHITE FEMALES 16-19	(3) NONWHITE MALES 16-19	(4) NONWHITE FEMALES 16-19	(5) WHITE MALES 25-59
$\ln k_{nli}$	-1.498 (-14.69)**	-2.003 (-22.05)**	-1.358 (-8.10)**	-2.222 (-11.37)**	-1.715 (-15.21)**
β_{nli}	0.061 (1,97)*	0.006 (0.23)	0.099 (1.94)	-0.037 (-0.62)	0.103 (3.01)**
g_{nli}	0.002 (5.68)**	0.002 (7.08)**	-0.001 (-1.11)	-0.000 (-0.58)	-0.003 (-6.28)**
S1	-0.272 (-8.64)**	-0.294 (-10.35)**	-0.236 (-4.55)**	-0.237 (-3.92)**	0.020 (0.57)
S2	-0.317 (-9.81)**	-0.211 (-7.25)**	-0.266 (-5.01)**	-0.292 (-4.72)**	-0.008 (-0.21)
S3	-0.274 (-8.58)**	-0.249 (-8.66)**	-0.315 (-6.01)**	-0.300 (-4.91)**	-0.042 (-1.18)
S4	-0.107 (-3.34)**	-0.219 (-7.61)**	-0.245 (-4.66)**	-0.358 (-5.85)**	-0.008 (-0.23)
S5	-0.052 (-1.63)	-0.099 (-3.40)**	-0.215 (-4.06)**	-0.230 (-3.71)**	0.016 (0.46)
S6	0.834 (25.52)**	0.702 (23.84)**	0.844 (15.70)**	0.868 (13.85)**	0.085 (2.35)*
S7	0.670 (21.75)**	0.498 (17.94)**	0.826 (16.33)**	0.643 (10.91)**	-0.008 (-0.24)
S8	0.185 (6.02)**	0.125 (4.52)**	0.440 (8.71)**	0.185 (3.14)**	0.057 (1.67)
S9	-0.033 (-1.07)	0.070 (2.53)*	-0.135 (-2.66)**	0.038 (0.64)	0.113 (3.31)**
S10	-0.115 (-3.56)**	-0.012 (-0.41)	-0.082 (-1.56)	0.016 (0.26)	-0.013 (-0.37)
S11	-0.275 (-8.57)**	-0.162 (-5.60)**	-0.259 (-4.91)**	-0.120 (-1.96)	-0.076 (-2.13)*
F(11, 109) Seasonals	135.42**	109.93**	68.61**	38.18	3.32**
$\bar{R}^2$	0.928	0.917	0.864	0.772	0.604
S.E.	0.106	0.095	0.174	0.203	0.117
D.W.	1.793	2.068	1.988	1.758	1.533

The first column shows our estimates of the determinants of the monthly probability of a white male teenager entering the labor force. Over the ten-year estimation period, approximately 20% of nonparticipants in this group entered the labor force each month. The estimates in column 1 indicate that: (1) the probability of entering in any particular month is strongly associated with the state of the business cycle; (2) this probability has been increasing over time; and (3) it has a strong seasonal component. June and July, of course, are the months when a teenager is most likely to enter the labor force. About 92% of the monthly variation in the probability of entering the labor force for this group is explained by our equation. Most of this variation is explained by the seasonal dummies.

White female teenagers show no significant cyclical sensitivity in their entry patterns, but do show a strong, positive entry trend; nonwhite males have a procyclical entry pattern, but no trend; and nonwhite female entry rates have no significant trend or cyclical patterns. By way of comparison, prime-age white males, whose coefficients are shown in the last column, have a positive cyclical entry pattern, a negative entry trend, and a seasonal pattern which, although significant, is much smaller than that of any of the teenage groups.

Our strongest results concern the probability that a teenager who enters the labor force will have a job during the month that he or she enters (Table 3). For the decade as a whole, white teenagers were much more likely than nonwhite teenagers to be successful entrants. About 66% of white males and 63% of white females had jobs in the entry month compared with only 47% on nonwhite males and 33% of nonwhite females.

As should be expected, for every group the probability of a new entrant or re-entrant having a job varied procyclically (i.e., a positive coefficient on the vacancy-unemployment term). Successful entry was closely related to the state of the aggregate labor market. A startling finding was the significant negative trends found for

TABLE 3

PARAMETERS DETERMINING PROBABILITY OF SUCCESSFUL LABOR FORCE ENTRY

$$\ln(NE_i/NL_i) = \ln k_{nei} + \beta_{nei}\ln(V/U)_{-1} + g_{nei}T + S1 + \ . \ . \ . + S11 + \varepsilon_{nei}$$

	(1) WHITE MALES 16-19	(2) WHITE FEMALES 16-19	(3) NONWHITE MALES 16-19	(4) NONWHITE FEMALES 16-19	(5) WHITE MALES 25-59
$\ln k_{nei}$	0.260 (4.84)**	-0.147 (-2.56)*	0.050 (0.27)	0.954 (2.58)*	0.327 (4.65)**
β_{nei}	0.162 (9.98)**	0.056 (3.23)**	0.190 (3.38)**	0.473 (4.13)**	0.173 (8.16)**
g_{nei}	-0.001 (-4.23)**	-0.001 (-6.66)**	-0.001 (-1.63)	-0.004 (-3.02)**	-0.001 (-3.61)**
S1	-0.000 (-0.02)	-0.005 (-0.26)	-0.024 (-0.41)	-0.090 (0.79)	-0.024 (-1.09)
S2	-0.095 (-5.60)**	-0.006 (-0.31)	-0.099 (-1.69)	-0.044 (-0.37)	-0.075 (-3.39)**
S3	-0.071 (-4.24)**	-0.015 (-0.82)	0.009 (0.16)	-0.394 (-3.40)**	-0.050 (-2.28)*
S4	0.050 (2.96)**	0.012 (0.66)	0.019 (0.33)	0.039 (0.34)	0.021 (0.96)
S5	0.067 (3.94)**	0.006 (0.33)	0.144 (2.46)*	-0.111 (-0.95)	0.026 (1.16)
S6	0.014 (0.80)	-0.067 (-3.64)**	-0.158 (-2.65)**	-0.147 (-1.23)	-0.019 (-0.86)
S7	0.051 (3.20)**	0.046 (2.67)**	0.182 (3.25)**	0.278 (2.49)*	0.038 (1.83)
S8	0.077 (4.76)**	0.001 (0.10)	0.092 (1.65)	0.204 (1.83)*	0.008 (0.40)
S9	-0.028 (-1.72)	0.004 (-0.20)	-0.025 (-0.45)	-0.146 (-1.30)	0.077 (3.62)**
S10	0.35 (2.07)*	0.024 (1.34)	0.001 (0.01)	0.107 (0.92)	0.022 (0.983)
S11	-0.042 (-2.49)*	-0.04 (-2.34)*	-0.133 (-2.28)*	-0.030 (-0.25)	-0.029 (-1.33)
F(11,109) Seasonals	11.05**	2.95**	2.94**	2.39**	3.33**
$\bar{R}^2$	0.812	0.626	0.351	0.472	0.727
S.E.	0.056	0.060	0.192	0.383	0.073
D.W.	1.802	2.036	2.304	2.064	2.326

every group. That is, adjusting for cyclical and seasonal fluctuations, it is becoming increasingly difficult for an entrant or re-entrant to immediately find a job, with the steepest decline estimated for nonwhite females. This negative trend, incidentally, was found for prime-age white males as well.

Once an individual is in the labor force, the probability of leaving in a given month may be related to cyclical, trend, and seasonal factors. We distinguish between the probability of leaving the labor force if employed and the probability of leaving the labor force if unemployed. The next two tables report our parameter estimates for each category. No uniform cyclical pattern in exit rates was found. Looking first at the probability of leaving the labor force if employed, Table 4 shows a significant reduction for white females in the probability of leaving as job opportunities expand, but an increase for the two nonwhite teenage groups and for prime-age males. Negative trends were estimated for both white teenage groups and for nonwhite females. There is an obvious seasonal pattern, with the probability of a teenager leaving the labor force extremely high in September.

Table 5 shows that the probability of leaving the labor force if unemployed is positively related to the state of the aggregate labor market for white teenagers and negatively related for nonwhite female teens. A negative trend in the exit rate is estimated for the white teenage groups and a positive trend is estimated for nonwhite females. The probability of leaving is much lower than average in the months of June and July.

The mixed findings with respect to cyclical patterns in the probabilities of teenagers leaving the labor force from employment and unemployment raise the question of the cause of the cyclical labor force exit patterns, commonly associated with labor force discouragement. We offer a very simple explanation, supported by the gross change statistics: unemployed people regardless of age, race, sex, or state of the ecomony, are more likely to leave the labor force than

TABLE 4

PARAMETERS DETERMINING PROBABILITY OF LABOR FORCE EXIT FROM EMPLOYMENT

$$\ln(EN_i/E_{i,-1}) = \ln k_{eni} + \beta_{eni}\ln(V/U)_{-1} + g_{eni}T + S1 + \ldots + S11 + \varepsilon_{eni}$$

	(1) WHITE MALES 16-19	(2) WHITE FEMALES 16-19	(3) NONWHITE MALES 16-19	(4) NONWHITE FEMALES 16-19	(5) WHITE MALES 25-59
$\ln k_{eni}$	-2.102 (-17.82)**	-2.117 (-21.75)**	-1.393 (-5.08)**	-1.122 (-4.25)**	-5.226 (-46.87)**
β_{eni}	0.008 (0.23)	-0.075 (-2.56)**	0.184 (2.22)*	0.142 (1.77)	0.156 (4.62)**
g_{eni}	-0.002 (-5.18)**	02.003 (-9.23)**	0.001 (1.00)	-0.002 (-2.35)*	0.002 (3.83)**
S1	0.064 (1.75)	0.163 (5.41)**	0.116 (1.37)	0.046 (0.56)	0.160 (4.64)**
S2	-0.127 (-3.41)**	-0.151 (-4.90)**	-0.175 (-2.01)*	-0.048 (-0.57)	-0.186 (-5.27)**
S3	-0.220 (-5.96)**	-0.145 (-4.76)**	-0.349 (-4.06)**	-0.370 (-4.48)**	-0.103 (-2.94)**
S4	-0.157 (-4.24)**	-0.038 (-1.24)	-0.176 (-2.05)*	-0.090 (-1.09)	-0.001 (-0.04)
S5	-0.018 (-0.49)	-0.003 (-0.09)	0.027 (0.31)	-0.134 (-1.61)	0.040 (1.13)
S6	-0.325 (-8.60)**	-0.065 (-2.10)*	-0.280 (-3.20)**	-0.024 (-0.29)	-0.083 (-2.32)*
S7	-0.473 (-13.30)**	-0.261 (-8.89)**	-0.355 (-4.29)**	-0.073 (-0.92)	0.118 (3.51)**
S8	0.163 (4.59)**	0.092 (3.12)**	0.213 (2.58)**	0.299 (3.77)**	0.064 (1.88)
S9	1.038 (29.09)**	0.852 (28.91)**	1.125 (13.58)**	1.001 (12.54)**	0.076 (2.24)*
S10	0.163 (4.37)**	0.039 (1.26)	-0.050 (-0.57)	-0.050 (-0.61)	-0.039 (-1.12)
S11	0.010 (0.28)	-0.164 (-5.37)**	0.009 (0.11)	-0.244 (-2.95)**	0.016 (0.45)
F(11,109) Seasonals	101.98**	94.04**	20.87**	18.44**	7.48**
$\bar{R}^2$	0.906	0.902	0.655	0.648	0.414
S.E.	0.122	0.101	0.284	0.273	0.116
D.W.	1.804	1.898	1.872	2.300	2.155

TABLE 5

PARAMETERS DETERMINING PROBABILITY OF LABOR FORCE EXIT FROM UNEMPLOYMENT

$$\ln (UN_i/U_{i,-1}) = \ln k_{uni} + \beta_{uni}\ln(V/U)_{-1} + g_{uni}T + S1 + \ldots + S11 + \epsilon_{uni}$$

	(1) WHITE MALES 16-19	(2) WHITE FEMALES 16-19	(3) NONWHITE MALES 16-19	(4) NONWHITE FEMALES 16-19	(5) WHITE MALES 25-59
$\ln k_{uni}$	-0.349	-0.622	-1.169	-1.600	0.254
	(-2.90)**	(-5.24)**	(-5.43)**	(-7.84)**	(1.18)
β_{uni}	0.178	0.084	-0.010	-0.121	0.669
	(4.87)**	(2.33)*	(-0.15)	(-1.96)	(10.57)**
g_{uni}	-0.003	-0.003	0.000	0.002	-0.000
	(-6.57)**	(-7.22)**	(0.47)	(2.35)*	(-0.13)
S1	0.187	0.226	0.220	0.031	0.315
	(5.07)**	(6.18)**	(3.31)**	(0.50)	(4.73)**
S2	-0.050	-0.006	-0.090	0.053	-0.111
	(-1.30)	(-0.16)	(-1.32)	(0.82)	(-1.63)
S3	0.037	0.008	0.038	-0.040	-0.183
	(0.99)	(0.22)	(0.57)	(-0.62)	(-2.71)**
S4	0.149	0.140	0.074	0.062	-0.080
	(3.94)**	(3.76)**	(1.09)	(0.97)	(-1.19)
S5	0.186	0.117	0.182	0.153	-0.098
	(4.90)**	(3.14)**	(2.68)**	(2.37)*	(-1.44)
S6	-0.284	-0.141	-0.153	-0.196	-0.166
	(-7.36)**	(-3.72)**	(-2.23)*	(-2.99)**	(-2.41)*
S7	-0.289	-0.096	-0.236	-0.181	-0.033
	(-7.95)**	(-2.69)**	(-3.63)**	(-2.95)**	(0.51)
S8	0.057	0.027	-0.112	0.084	0.076
	(1.57)	(0.81)	(-1.72)	(1.36)	(1.17)
S9	0.150	-0.051	0.322	0.104	-0.069
	(4.17)**	(-1.41)	(4.94)**	(1.69)	(1.06)
S10	-0.083	-0.160	-0.097	-0.046	0.063
	(-2.19)*	(-4.26)**	(-1.42)	(-0.72)	(1.93)
S11	-0.027	-0.065	-0.056	-0.027	0.096
	(-0.72)	(-1.75)	(-0.82)	(-0.42)	(1.42)
F(11,109) Seasonals	17.97**	8.97**	6.04**	2.63**	4.18**
$\bar{R}^2$	0.767	0.658	0.312	0.306	0.688
S.E.	0.125	0.123	0.223	0.212	0.223
D.W.	1.594	1.706	1.630	1.800	1.557

employed people in the same demographic group. Hence, an increase in the unemployment rate generates a higher labor force exit rate merely by shifting more people into the exit-prone unemployment stock even if the probability of exit from that stock does not change.[10]

Our last two sets of equations analyze the probabilities of transition between unemployment and employment. Table 6 provides our estimates of the relationship between the probability of unemployed persons finding a job each month and the same cyclical, trend and seasonal terms used in the preceding equations. For most teenage groups the probability of finding a job varies procyclically, as expected. For nonwhite females, we have an unexpected negative relationship. There is also a slight negative trend in the probability of an unemployed nonwhite male teenager finding a job. Seasonality plays a significant role for every group, with success highest in July and lowest in January.

Table 7 provides estimates of the relationship explaining the probability of an employed person becoming unemployed each month. This turnover probability is highest for nonwhite male teenagers and lowest for white female teens. We expected an inverse cyclical relationship for every group, but found it only for white female teens. The probability for most groups is highest in the months of January, June, and September and lowest in the spring.

Other Factors

We recognize that the transition rates of teenagers are influenced by many variables that are not included in our regression equations.

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[10] For a steady state analysis of this phenomenon, based on previous transition probability estimates, see Ralph E. Smith, "The Discouraged Worker in a Full Employment Economy," Proceedings of the American Statistical Association, Business and Economics Section, 1974, pp. 210-25. Subsequent simulations confirmed its importance in a dynamic context.

TABLE 7

PARAMETERS DETERMINING PROBABILITY OF TRANSITION FROM EMPLOYMENT TO UNEMPLOYMENT

$$\ln(EU_i/E_{i,-1}) = \ln k_{eui} + \beta_{eui}\ln(V/U)_{-1} + g_{eui}T + S1 + \ldots + S11 + \epsilon_{eui}$$

	(1) WHITE MALES 16-19	(2) WHITE FEMALES 16-19	(3) NONWHITE MALES 16-19	(4) NONWHITE FEMALES 16-19	(5) WHITE MALES 25-59
$\ln k_{eui}$	-3.235	-4.430	-3.057	-2.613	-6.554
	(-20.37)**	(-20.92)**	(-8.38)**	(-5.68)**	(-46.84)**
β_{eui}	0.006	-0.190	-0.018	-0.170	-0.483
	(0.13)	(-2.96)**	(-0.16)	(1.22)	(-11.53)**
g_{eui}	0.000	0.002	0.002	-0.002	0.001
	(0.59)	(2.01)*	(1.40)	(-0.88)	(1.19)
S1	0.252	0.152	0.224	0.178	0.288
	(5.13)**	(2.32)*	(1.99)*	(1.25)	(6.67)**
S2	-0.097	-0.080	-0.271	-0.269	0.144
	(-1.93)	(-1.20)	(-2.35)*	(-1.85)	(3.25)**
S3	-0.211	-0.017	-0.291	-0.112	0.063
	(-4.24)**	(-0.26)	(-2.55)*	(-0.78)	(1.44)
S4	-0.236	-0.231	-0.186	-0.369	-0.072
	(-4.75)**	(-3.48)**	(-1.63)	(-2.56)*	(-1.64)
S5	-0.233	-0.169	0.025	-0.387	-0.128
	(-4.65)**	(-2.53)*	(0.22)	(-2.66)**	(-2.91)**
S6	0.264	0.414	0.394	0.380	-0.060
	(5.19)**	(6.10)**	(3.37)**	(2.57)*	(-1.33)
S7	0.088	0.048	0.256	0.062	-0.090
	(1.83)	(0.75)	(2.33)*	(0.44)	(-2.12)*
S8	-0.117	-0.162	-0.147	0.007	0.080
	(-2.46)*	(-2.53)*	(-1.34)	(0.05)	(-1.91)
S9	0.171	0.289	0.236	0.440	-0.088
	(3.55)**	(4.51)**	(2.14)*	(3.16)**	(-2.08)*
S10	-0.005	0.025	0.124	0.119	-0.041
	(-0.10)	(0.37)	(1.08)	(0.82)	(-0.93)
S11	0.201	0.063	-0.077	0.129	0.072
	(4.03)**	(0.94)	(-0.67)	(0.89)	(1.65)
F(11, 109) Seasonals	13.58**	9.15**	3.97**	3.20**	7.36**
$\bar{R}^2$	0.530	0.521	0.234	0.212	0.812
S.E.	0.165	0.220	0.378	0.477	0.145
D.W.	1.853	2.218	1.763	1.822	1.410

TABLE 6

PARAMETERS DETERMINING PROBABILITY OF TRANSITION FROM UNEMPLOYMENT TO EMPLOYMENT

$$\ln(UE_{i,-1}/U_{i,-1}) = \ln k_{uei} + \beta_{uei}\ln(V/U)_{-1} + g_{uei}T + S1 + \ldots + S11 + \varepsilon_{uei}$$

	(1) WHITE MALES 16-19	(2) WHITE FEMALES 16-19	(3) NONWHITE MALES 16-19	(4) NONWHITE FEMALES 16-19	(5) WHITE MALES 25-59
$\ln k_{uei}$	-0.333	-1.023	-0.234	-2.610	-0.663
	(-2.90)**	(-6.76)**	(-0.77)	(-7.34)**	(-6.83)**
β_{uei}	0.244	0.085	0.351	-0.216	0.102
	(7.01)**	(1.84)	(3.79)**	(-2.01)*	(3.48)**
g_{uei}	0.001	0.001	-0.002	-0.000	-0.002
	(1.32)	(1.59)	(-1.96)	(-0.27)	(-4.29)**
S1	-0.208	-0.388	-0.164	-0.394	-0.203
	(-5.87)**	(-8.29)**	(-1.73)	(-3.58)**	(-6.77)**
S2	-0.113	-0.047	-0.095	-0.099	-0.065
	(-3.11)**	(-0.98)	(-0.99)	(-0.88)	(-2.10)*
S3	-0.126	-0.105	-0.035	0.105	-0.016
	(-3.50)**	(2.22)*	(-0.37)	(0.945)	(-0.54)
S4	0.051	-0.109	-0.144	-0.299	0.075
	(1.43)	(-2.30)*	(-1.50)	(-2.69)**	(2.47)**
S5	-0.029	-0.039	-0.170	-0.066	0.089
	(-0.78)	(-0.82)	(-1.76)	(-0.59)	(2.90)**
S6	0.152	0.067	0.021	-0.016	-0.046
	(4.13)**	(1.38)	(0.21)	(-0.14)	(-1.46)
S7	0.356	0.279	0.540	0.552	0.027
	(10.28)**	(6.10)**	(5.86)**	(5.15)**	(0.92)
S8	0.127	0.055	0.291	0.191	0.161
	(3.68)**	(1.22)	(3.16)**	(1.79)	(5.50)**
S9	0.023	0.108	-0.176	0.101	0.154
	(0.67)	(2.36)*	(-1.89)	(0.94)	(5.25)**
S10	0.065	0.140	0.124	0.353	0.027
	(1.80)	(2.92)**	(1.29)	(3.14)**	(0.88)
S11	-0.101	-0.002	-0.023	-0.239	-0.035
	(-2.80)**	(-0.04)	(-0.24)	(-2.14)*	(-1.15)
F(11, 109) Seasonals	21.93**	11.72**	5.45**	6.36**	15.45**
$\bar{R}^2$	0.747	0.535	0.485	0.332	0.716
S.E.	0.119	0.157	0.317	0.369	0.101
D.W.	1.909	2.034	1.624	2.249	2.256

In particular, decisions to enter or leave the civilian labor market and the outcomes of these decisions are closely related to decisions regarding schooling, marriage, fertility, and military service and to government activities such as minimum wages and public service employment. A comprehensive gross flow model of the teenage labor market should take these factors into account.

During the past decade, probably the most critical influence on teenage males was the Vietnam War. To explore the impact of the military buildup in the late-sixties, we re-estimated our equations with a dummy variable that took the value of one in 1967, 1968 and 1969, and zero in other years. Since the Vietnam years were also the period of lowest unemployment and were at the beginning of our estimation period, we were concerned that our cyclical and trend coefficients would be quite sensitive to the change in specification. A superior procedure, time and data permitting, would be to model directly the gross flows between the armed forces and each of the labor market stocks.

Our results confirmed the importance of Vietnam to the teenage labor market, but suggested that our trend and cycle estimates were not particularly sensitive. Every group's probability of finding a job when unemployed was increased during the Vietnam period (with significant Vietnam dummies for three of the groups and near-significance for white male teens). Also, the probability of a white male teen leaving the civilian labor force increased, while their probability of transition from employment to unemployment declined. Only two other Vietnam dummies were significant.[11] Among the original cyclical and trend terms, only one coefficient (a negative cyclical term on the white female exit rate from employment) switched signs and remained significant; only six of the twenty-five significant trend or cyclical coefficients lost significance; and two new trends were introduced (positive hire probabilities for white males and white females).

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[11] These were a positive dummy in the equation explaining the entry rate of nonwhite females and an unexpected negative dummy in the equation for the white female entry success rate.

Interpretation of the Labor Force and Unemployment Patterns

What have we learned about the teenage participation and unemployment rates of the past decade by analyzing the underlying gross flows? First, there are strong trends in both the labor force entry rates and the exit rates that are underlying the growth in white teenage participation, with steeper trends for the females. Unless these trends change, the difference in particiaption rates between white male and white female teens will continue to narrow. These entry and exit trends were not present for nonwhites.

Second, the cyclical participation patterns of teenagers are generated, in part, by the positive link between their entry decisions and job availability. In addition, unemployed teenagers are much more likely than those with jobs to drop out of the labor force. This discouraged worker pattern serves to dampen the cyclical amplitude of their reported unemployment rates since only active job-seekers are counted. Since the recent recession reduced teenage participation, above-trend growth in their participation rates should be anticipated during the recovery and has begun.

Third, the chronically high unemployment rates of teenagers can be directly linked to their large flows through the labor market.[12]

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12. An excellent analysis of differences in steady state unemployment rates between demographic groups is in Stephen T. Marston, "Employment Instability and High Unemployment Rates," Brookings Paper on Economic Activity vol. 1 (1976), pp. 169-203. Using our corrected transition probabilities for 1967 through 1973, Marston finds that the major factor accounting for the difference between teen and adult unemployment rates is the larger probability for teens of leaving employment. This is consistent with our findings.

One-third of white teenagers and over half of nonwhite teenagers experience unemployment during the month that they enter the labor force. In addition, over 3% of teens with jobs become unemployed each month, triple the rate for prime-age adults. Once unemployed, white teenagers' probability of finding a job is similar to that of adults, but the likelihood of leaving the labor force is much higher. Nonwhite teenagers have the additional problem of having much lower probabilities of finding a job in the month that they enter the labor force and much lower monthly probability of finding a job once unemployed. Also, if employed, their probability of becoming unemployed each month is much higher.

Fourth, the deterioration in the relative position of nonwhite teenagers can be traced to both secular and cyclical differences in their behavior. Not only are their rates of labor force entry failing to keep pace with those for white teenagers, but also their success in finding work is decreasing more rapidly, which discourages further participation. The widening gap between nonwhite and white teenage unemployment is contributing to the widening gap in their participation.

CONCLUSIONS

One of the motivations for this paper was to call attention to a potentially valuable source of data on labor market dynamics of youth. Clearly, the data need to be improved before they can be considered as valid indicators of month-to-month changes in the state of the economy.[13] But their failure to provide monthly signals that always coincide with those provided by conventional labor market series does not eliminate their value as an analytic tool. The trend, cyclical, and seasonal patterns reported in this paper do conform to those of the conventional CPS labor force and unemployment series and help to explain them. Much of the monthly variation in the transition probabilities is systematic and accounted for by our equations. Of the twenty-four equations estimated for teenagers, fourteen had cyclical variation significant at the .05 level; fourteen had significant trends; and all had significant seasonality; for white teenagers, between 52% and 92% of the variation in the transition probabilities were explained by our regressions; for nonwhite teenagers, between 23% and 86% were explained.

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[13] For recommendations regarding the improvement and dissemination of gross flow tabulations see our paper, "Gross Change Data: The Neglected Data Base," to be published by the National Commission on Employment and Unemployment Statistics later this year.

In this paper we have not focussed on the policy implications of our estimates. One use of the estimates would be to test the potential effects on teenage employment and unemployment of alternative policy interventions. Typically, a program would have its direct impact on one or more transition probabilities which, in turn, would effect both employment and unemployment. For example, expanding the number of public service employment slots available to teenagers would increase their probability of being hired and would attract more teenagers into the labor force. In evaluating the outcome of a job-creation program, our estimates suggest the importance of measuring the labor force response as well as the impact on unemployment.

Earlier estimates of the transition probability equations have been used to assess the impact of macroeconomic policy on the teenage labor market.[14] It was found that the 1974-1975 recession had a severe impact on teenage employment which was only partly reflected in their unemployment rates. We estimated that macroeconomic policies alone could alleviate much of the problem, but would leave teenage unemployment and labor force discouragement rates substantially higher than those of adults. Structural remedies oriented toward the special labor market problems and seasonality of the youth labor market are needed.

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[14] Ralph E. Smith, "The Teenage Unemployment Problem--How Much Will Macro Policies Matter?" in The Teenage Unemployment Problem: What Are the Options? Report of a Congressional Budget Office Conference (Washington, D.C.: Government Printing Office), pp. 7-17.

The increasing difficulty that all teen groups are having in finding jobs must be diagnosed and cured. Teenagers whose families are not plugged into informal job referral networks need alternatives. This is especially the case for minorities. Much of the difference between white and nonwhite teenagers in their unemployment rates can be traced to the greater difficulty that nonwhites have in obtaining a job once in the market. In addition, nonwhite teenage job-seekers are more likely to become discouraged and withdraw from the labor force. Hence, the real difference in the labor market performance between the two groups is even greater than the difference in their unemployment rates. Ways must be found to eliminate these disparities. Our analysis of the past decade provides no basis whatsoever for optimism that the problems are being resolved.

APPENDIX

AVERAGE MONTHLY TRANSITION PROBABILITIES[a]
(JULY 1967 - JUNE 1977)

	White Male Teen	White Female Teen	Black Male Teen	Black Female Teen	White Male Age 25-59
Labor Force Entry ($NL_i'/N_{i,-1}$)	.22	.16	.19	.13	.10
Successful Entry (NE_i'/NL_i')	.67	.64	.49	.36	.68
Labor Force Exit From Employment ($EN_i'/E_{i,-1}$)	.11	.14	.15	.18	.003
Labor Force Exit From Unemployment ($UN_i'/U_{i,-1}$)	.31	.33	.34	.37	.10
Unemployment to Employment ($UE_i'/U_{i,-1}$)	.30	.28	.20	.18	.32
Employment to Unemployment ($EU_i'/E_{i,-1}$)	.04	.03	.06	.04	.01

a. These are the mean proportions of the populations who make the indicated transitions. The flows on which these estimates are based were corrected, using the procedure discussed in the text.

THE TRANSITION FROM SCHOOL TO WORK WITH JOB SEARCH IMPLICATIONS

By: Stanley P. Stephenson, Jr.*

ABSTRACT

This study adapts a human capital model of schooling and earnings to focus on the transition period. The adaptation consists of two steps. First, unemployment incidence and duration after last leaving school, but prior to the first job taken, is included as an intervening part of the transition process. A second feature is the consideration of the extent to which job holding while in school alters subsequent unemployment and wage rates.

Data used in the analysis is the NLS panel of white and black young men who were fourteen- to twenty-four-years-old in 1966. Persons included in the sample were drawn from the period 1966 to 1971 and had stopped attending school during this period. White and black men were studied separately. The complete model comprised a recursive system of a schooling equation, an unemployment equation, and an hourly wage equation.

The main results concern the unemployment and wage equations. Holding a job while in school lowers the incidence and duration of later unemployment and raises the subsequent hourly wage for both white and black youth. Full-time job effects exceed part-time job effects in both equations, and all effects are highly significant statistically. Job search theory suggests some types of unemployment behavior may lead to a higher wage, and a positive but nonsignificant effect of unemployment on the post-school wage was found for black youth. For white youth, however, significant and negative impacts of unemployment on the post-school wage were found.

Policy implications of the analysis suggest that school-work programs may ease transition problems for some youth in terms of raising post-school wage rates and lowering youth unemployment in the time immediately after school. An important qualification is that the present study did not evaluate government-created jobs for youth which may differ from the in-school jobs held by youth in this study.

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*I am grateful for the research assistance of David Smull. The opinions are mine alone, however.

INTRODUCTION

This paper examines the determinants of successful school to work transition among a nationally representative sample of black and white male youth. The analysis involves estimating the parameters in a standard recursive model of schooling and wage rates and considers two issues which have not been fully explored in previous empirical analyses. First, the transition year may involve an intervening period of unemployment during which the school leaver searches for a job. This search behavior is included in the recursive model as an added equation. Some consider such unemployment as an indicator of an unsuccessful transition. This view is questioned by some results obtained here. Secondly, the nature of the search process, as well as the overall ease of the transition process, may be altered by the youth's labor force status during his last year in school. Indeed, Freeman and Coleman in a recent report urged that federal youth policy should consider programs which include work experiences while in school as a means of easing school to work transition problems.[1] While no special programs are examined here, we can examine the impact of labor status in school on the subsequent job search process and on the wage rate on the job held after last leaving school.

CONCEPTUAL ISSUES

Defining the Process

How one specifies exactly when the school to work transition occurs is crucial to the interpretation of the labor market results obtained.[2]

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1. Richard Freeman and James Coleman, discussion in The Teenage Unemployment Problem: What are the Options?, Congressional Budget Office Report. (Washington: Government Printing Office, 1976).

2. Michael D. Ornstein, Entry into the American Labor Force (New York: Academic Press, 1976).

Perhaps the first job held is the point at which the transition process should be measured. Yet such a job, if it can be recalled, may have little relation to a youth's future career or adult labor market experience, and, as such, may not indicate a successful transition. A next step is to consider the job taken after leaving school. Yet, a number of analysts have discussed the difficulties arising from ambiguities in responses obtained in surveys which seek to identify the first full-time job after an individual left school.[3] Several solutions have been suggested for determining the first such job: (a) "the first job after you first attended regular school",[4] (b) "the first job at which the respondent worked for two or more consecutive weeks after discontinuing regular school",[5] and (c) when the individual "leaves full-time schooling and participates in the labor force for a period of more than sixteen months without returning to full-time education during that time".[6] The choice depends on the goals and purposes of the analyst.

In this study, we are concerned with the determinants of successful transition from full-time student status to full-time labor participation. As such, we need to allow for the intermittent nature of the schooling decision by many youth by defining entry point into the labor force as the first job after the youth has last left full-time school. The data used covers six years of school and nonschool status, 1966-1971. Youth not in full-time school during at least one year in this period, as well as youth only in full-time school the entire time, were excluded. As indicated, for youth who entered and left school repeatedly, the last school exit was selected. In the empirical section, emphasis is placed on examining responses at time t, the last year in school, with responses obtained at t+1, the next year.[7]

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[3] P. M. Blau and O. D. Duncan, The American Occupational Structure (New York: Wiley, 1967); O. D. Duncan, D. L. Featherman, and B. Duncan, Socioeconomic Background and Achievement (New York: Seminar Press, 1972); Ornstein, op. cit.

[4] Duncan, et al., op. cit.

[5] A. Kohen and P. Andrisani, Career Thresholds: A Longitudinal Study of the Educational and Labor Market Experience of Male Youth, vol. 4 (Columbus, Ohio: The Ohio State University, Center for Human Resource Research, 1973).

[6] Ornstein, op. cit.

Model Specification

The transition from school to work is considered in this paper as an extension of human capital theory. Usually, in such theoretical models, the individual chooses how far to continue in school, so as to maximize the discounted value of future earnings.[8] In the empirical versions of such models, individual earnings, Y, are considered a function of optimal schooling years, S, and individual "ability", A, where school years are a function of ability and market interest rates, r. With measures of A and r, such as test scores, family socio-economic status, family income and so forth, the model is recursive and exactly identified.[9]

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[7] For some youth, a one year school exit, even the last such exit, may not capture the job held after last exit, if school re-entry occurs. Within the existing data, one could require two successive years of nonschool status, but such a procedure restricts the available sample.

[8] Gary Becker, Human Capital and Personal Distribution of Income, 1967 Woytinsky Lecture (Ann Arbor, Michigan: University of Michigan, Institute of Public Administration, 1967).

[9] Sherwin Rosen, "Human Capital: A Survey of Empirical Research" in R. Ehrenberg, ed., Research in Labor Economics, vol.I (Greenwich, Conn.: JAI Press, 1977), pp.3-39.

sider a twenty-year old youth with twelve years of education. If the youth did not hold a job while in school, potential experience is two years, while it is three years if a job was held during the last year in school. Because we are interested in measuring successive years in school and out of school, the problem may be minimal. Yet if schooling and informal training are substitutes in terms of their effect on future earnings, we overestimate the returns to schooling by excluding the general training content of jobs held while in school.[12]

Ideally, one would like to include an indicator of each year in which schooling and work were combined. As an approximation, we consider the work status in the last year of schooling and distinguish full-time, part-time (less than thirty hours worked per week), unemployed, and not in the labor force. Thus, equations (1) and (2) have been rewritten as

$$S = G\ [r,A] \tag{3}$$

$$Y_{t+1} = F\ [S,A,LFS_t] \tag{4}$$

where LFS_t is individual labor force status at time t when in school.

A second modification to the human capital model considers youth job search behavior. Following Stigler's seminal theoretical article on search theory,[13] several theoretical efforts have been made to examine differential wage levels for homogeneous labor at a given place and time in terms of the differential length of effort by individuals

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[12] This statement presumes that the job held in school is primarily part-time and that job changing occurs after schooling is completed. According to Lazear, "92% of students who work change jobs upon graduation." see Edward Lazear, "Schooling as a Wage Depressant," Journal of Human Resources, vol. 12, (Spring 1977), pp. 164-76.

[13] George Stigler, "Information in the Labor Market," Journal of Political Economy, vol. 70 (October 1962).

$$S = G\,[r,A] \tag{1}$$

$$Y = F\,[S,A] \tag{2}$$

This is the basic model used in the present analysis. However, certain modifications are necessary since this does not allow for sufficient flexibility in an individual's combination of school/work alternatives. First, the above model implies that the youth undergoes a period of full-time schooling followed by a lifetime of full-time earnings. For many youth, such as those who face imperfect capital markets, or those who are married and maintain households away from their parents, e.g., such as a research assistant, full-time schooling is continued while holding a job. In addition, because we have selected the transition definition of the first job after last leaving school, it is quite possible that persons in school will also be active in the labor market. In contrast, the theoretical model does not allow for later wage impacts of jobs held while in school. Granted, the training impact on wages of informal on-the-job-training has been established by Mincer,[10] Becker,[11] and others; but there is a problem with Mincer's measure of potential work experience as [Age - Education - 6] in that it assumes no job was held while in school. For example, con-in searching for a job.[14] Search costs, time preferences in consumption, wealth, and propensity for leisure have also been empirically related to youth job search behavior.[15] According to the theory, the basic dilemma facing the youth is which of many possible offers to accept. If a low offer is accepted, search length is reduced, but subsequent earnings are also reduced. Alternatively, too high a reservation wage leads to a prolonged search period and possibly higher post-unemployment earnings. If the search for labor market information is viewed as an investment, primarily in time, certain investment optimization rules can be applied, much like those applied to school leaving decisions. That is, some youth unemployment may be beneficial in that it enables the youth to secure his highest wage consistent with his search costs. Yet, some youth unemployment may not be of this type. A previous study of mine found 90% of unemployed youth accepted their first job offer.[16] To find any offer may be a main job search goal for many youth.

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[10] Jacob Mincer, "On-the-Job Training: Costs, Returns, and Some Implications," Journal of Political Economy, supplement 5, part 21, vol. 70 (October 1962).

____________, "The Distribution of Labor Incomes: A Survey with Special Reference to the Human Capital Approach," Journal of Economic Literature, vol. 8, 1970.

____________, Schooling, Experience and Earnings (New York: Columbia University Press, 1974).

[11] Gary Becker, "Investment in Human Capital: A Theoretical Analysis," Journal of Political Economy, October 1962.

We incorporate this second modification by including a third and intervening equation for unemployment. Schooling and work experience in school alter the unemployment behavior and all three factors affect the wage obtained after leaving school. We now rewrite the model as

$$S = g\ [r, A, X_t, \varepsilon_1] \qquad (5)$$

$$UE = H\ [r, S, LFS_t, X_t, \varepsilon_2] \qquad (6)$$

$$Y_{t+1} = F\ [S, LFS_t, UE, X_{t+1}, \varepsilon_3] \qquad (7)$$

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14. Steven Lippman and John J. McCall, "The Economics of Job Search: A Survey," Economic Inquiry, vol. 14, nos. 2 and 3 (June 1976 and September 1976).

15. Stanley P. Stephenson, Jr., "The Economics of Youth Job Search Behavior," The Review of Economics and Statistics, vol. 58 (February 1976), pp. 104-11.

16. Stephenson, op. cit.

The X_t and X_{t+1} are vectors of relevant demographic and economic variables and the ε_i are randomly distributed error terms with zero means that account for left out variables. Unemployment now alters earnings after school, yet the sign is ambiguous. If unemployment is a productive job search investment, then $\partial Y_{t+1}/\partial UE>0$; if, however, UE is above some subjectively determined critical point, such that reservation wage decay has substantially reduced the average acceptance wage, then $\partial Y_{t+1}/\partial UE<0$.

Two problems arise in estimating this model. Unemployment and reservation wage adjustments are dynamic concepts that we only approximate with annual survey data on weeks unemployed in the past year and the wage of the job held when interviewed. Many persons have no unemployment, which means a clustering of zero values and inefficient OLS estimation of equation (6) parameters. We, therefore, consider two measures of UE: (a) whether or not one becomes unemployed and (b) the duration of unemployment. A second issue is that search theory implies that ε_2 and ε_3 are jointly distributed with a negative covariance due to the hypothesized decline in reservation wages over unemployment duration. This means that not only will $\partial Y_{t+1}/\partial UE$ be biased, but every other term in equation (7) that is correlated with UE will be biased. To correct for this problem, we use not the actual UE measure, but an expected UE measure that considers separately (a) whether or not the youth becomes unemployed and (b) the duration of conditional unemployment. This procedure is derived with a twin linear probability model.[17]

DATA

The study is based on the National Longitudinal Survey panel data of 5000 young men interviewed each year from 1966 to 1971. To be included, the youth had to complete two successive interviews in which he was a full-time student in year t and not enrolled in year t+1. In case of multiple periods in and out of school, the last such pair of years was selected. White and black youth were studied separately. Certain key variables were used to additionally screen the sample. That is, youth not having a recorded measure of scholastic aptitude,local unemployment rate, years of school completed, or family socio-economic status were excluded. Further exclusions were for youth with less than eight years of schooling. Sample means and standard deviations of variables used in the analysis are provided in Table 1.

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[17] Arthur S. Goldberger, Econometric Theory (New York: John Willy & Sons, 1964), p. 252.

The empirical specification of the theoretical model is a recursive system of three equations which allow us to examine direct and indirect influences on postschooling wage rates. The equations are

$$\begin{aligned}\text{Schooling} = {} & a_0 + a_1 \text{ Scholastic Aptitude} + a_2 \text{ Non-South} + \\ & a_3 \text{ Time} + a_4 \text{ Family SES} + a_5 \text{ Health Limits}_t + \\ & a_6 \text{ Family Income} + a_7 \text{ Age} \end{aligned} \tag{8}$$

$$\begin{aligned}\text{Unemployment} = {} & b_0 + b_1 \text{ Schooling} + b_2 \text{ Non-South} + \\ & b_3 \text{ Time} + b_4 \text{ UE Rate} + b_5 \text{ Marital Status} + \\ & b_6 \text{ Net Family Income} + b_7 \text{ Military Exp.} + \\ & b_8 \text{ UI Payment} + b_9 \text{ LSFT}_t + b_{10} \text{ LSPT}_t + \\ & b_{11} \text{ LSUE}_t \end{aligned} \tag{9}$$

$$\begin{aligned}\text{Hourly Wage}_{t+1} = {} & c_0 + c_1 \text{ Schooling} + c_2 \text{ Scholastic} \\ & \text{Aptitude} + c_3 \text{ Non-South} + c_4 \text{ Time} + \\ & c_5 \text{ UE Rate} + c_6 \text{ Health Limits}_{t+1} + \\ & c_7 \text{Military Exp.} + c_8 \text{ LSFT}_t + c_9 \text{ LSPT}_t + \\ & c_{10} \text{ LSUE}_t + c_{11} \text{ Unemployment} \end{aligned} \tag{10}$$

where Scholastic Aptitude is a standardized mental ability measure based on pooling scores from a variety of achievement, aptitude, and intelligence tests; Non-South is a zero-one dummy variable equal to 1 if the respondent lives in a non-south census division; Time is a linear trend measure where 1967=1, 1968=2, etc.; Family SES is an index of the socio-economic level of the respondent's parental family based on (1) father's education, (2) father's occupation when respondent was fourteen, (3) mother's education, (4) education of oldest sibling, and (5) Availability

TABLE 1

MEANS AND STANDARD DEVIATIONS OF VARIABLES USED IN THE ANALYSIS BY RACE

	White		Black	
Variable	Mean	Standard Deviation	Mean	Standard Deviation
Schooling Years	13.62	(2.16)	12.52	(1.64)
Scholastic Aptitude	105.34	(13.57)	87.39	(14.82)
Non-South Resident	.73	(.44)	.36	(.48)
Real Family Income/1000	10.36	(6.98)	6.69	(4.67)
Real Family Income Less Respondent's Income/1000	7.27	(6.86)	4.71	(4.11)
If Health Limits, time t	.06	(.23)	.03	(.16)
If Health Limits Work, time t+1	.09	(.28)	.05	(.21)
Family Socioeconomic Status	109.56	(18.18)	93.11	(18.35)
If Not Married, time t+1	.79	(.40)	.90	(.29)
Age When Last in School	19.51	(3.00)	18.24	(2.38)
Real Wage Rate per Hour	2.13	(1.56)	1.70	(1.53)
If Employed Full-Time, time t	.29	(.45)	.20	(.39)
If Employed Part-Time, time t	.33	(.46)	.26	(.44)
If Unemployed, time t	.07	(.25)	.14	(.35)
If Ever in Military	.07	(.25)	.03	(.16)
Local Unemployment Rate	4.15	(2.44)	4.37	(1.90)
Time (1=1967; 2=1968, etc.)	3.32	(1.78)	2.76	(1.61)
Public Unemployment Insurance Benefits per Week Unemployed	.90	(7.46)	.34	(2.50)
Predicted Conditional Unemployment Duration of Multiplied by Predicted Unemployment Incidence	1.37	(1.56)	3.14	(3.04)
Predicted Unemployment Incidence	.29	(.45)	.40	(.49)
Other Variables of Interest				
Real Weekly Earnings, time t+1	93.68	(69.61)	69.70	(62.32)
If had Positive Earnings, time t+1	.90	(.31)	.90	(.30)
Average Hrs Worked per Wk, time t+1	38.08	(16.56)	36.55	(14.94)
Unemployment Duration, $_{UE>0}$	8.73	(9.38)	8.83	(9.98)

of reading material in the home when respondent was fourteen; Health Limits is a zero-one dummy variable equal to 1 if the respondent indicated the existence of work-limiting health problems; Family Income is the parental income if the individual is single or lives with his parents and is the respondent's family income for married youth not living at home (parental income, initially given in discrete intervals, was made into a continuous variable by first selecting mid-ranges, then converting the appropriate measure into constant 1967 dollars via a CPI price deflator); Age is the respondent's age when last in school; UE Rate is the local unemployment rate in the local labor market in which the respondent lived at t+1; Marital Status is a zero-one dummy variable equal to 1 if the respondent was not married; Net Family Income is family income less the respondent's annual wage or salary; Military Exp. is a zero-one dummy variable equal to one if the respondent ever served in the military as of time t; UI Payment is the annual income from public unemployment insurance divided by the number of weeks unemployed, or zero for persons never unemployed; $LSFT_t$, $LSPT_t$, and $LSUE_t$ are zero-one dummy variables which refer to the labor force status of the full-time student and indicate full-time employment, part-time employment (less than thirty work hours per week), and unemployment, respectively. The dependent variables are Schooling, which is measured as the highest year of school completed at t+1; Unemployment, which is a zero-one dummy variable equal to one if the respondent was ever unemployed in the year preceding the interview at t+1, or a continuous variable made up of the number of weeks unemployed in the past year; Hourly Wage at t+1, which is based on the processed response to "How much do you usually earn on this job before deductions?" and is converted into 1967 values.

Special attention in this study is placed on schooling, unemployment, and previous labor status effects on W, hourly wage. We hypothesize that schooling and previous work experience will raise W. As mentioned earlier, the unemployment variable effect on W is less clear.

Some attention is also given to the individual equations. In the schooling equation, we expect a_1, a_4, and a_7 to be positive as ability, taste for school, wealth, and age enter schooling decisions. The other variables control for time and place differences. In the unemployment equation, we expect b_4, b_8, and b_{11} to be positive. The method of computing UI Payment, however, may add some spurious correlation to the b_8 estimate and, hence, b_8 should be considered more of an "UI eligibility" effect rather than an exact measure of UI impacts on unemployment incidence or duration. Schooling influences on unemployment are unclear. Yet, previous work experience effects, b_9 and b_{10}, are hypothesized to reduce both unemployment measures. In the wage rate equation, the direct effects of schooling, previous work experience, and scholastic aptitude are expected to be positive. Job search impacts are less clear. In one sense, successful job search investments might suggest $c_{11} > 0$; yet, reservation wage decays might lead to $c_{11}<0$. Of course, we shall also examine the indirect effects of selected variables as well. For example, the total impact on W of being unemployed during one's last year in school is $\partial W/\partial LSUE$ which is the sum of the direct effect, c_{10}, and indirect effects, $c_{11}\cdot\{(\partial P(UE)/\partial LSUE)\cdot(E[\text{UE Duration}]/\ P(UE)=1)+(\partial \text{UE Duration}/\partial LSUE)\cdot E[P(UE)]\}$

RESULTS

In Table 2 are presented the full regression results and standard errors. Consider first the schooling equation results. For white youth, as expected, scholastic aptitude, family SES, and age are statistically significant and positively related to years in school. The negative and significant effect of family income was not expected. Several possible explanations are (a) nonlinear income effects (b) measurement problems created by censoring out high income responses (c) the impacts on measured low income of married college students living apart from parents. These alternatives all require further investigation. Black youth also had more years of schooling if they had a high scholastic aptitude, family SES, and were older. Family income effects is also negative for black youth, but are not significant. Also, Non-South black youth averaged nearly .4 of a year less in school years completed than southern blacks.

TABLE 2

REGRESSION COEFFICIENTS AND STANDARD ERRORS (IN PARENTHESES)

	White Youth			
Independent Variable	Schooling	If UE	Weeks UE	Wage Rate per Hour[a]
Family SES	.02***			
	(.01)			
Scholastic Aptitude	.04***			.04
	(.01)			(.37)
Census Division (1=Non-South; 0=South)	- .09	.04	.45	22.15**
	(.09)	(.03)	(1.36)	(10.62)
Family Income/1000[a]	- .02**			
	(.01)			
Health Limits on Work, at t or t+1 (1=Yes; 0=No)	- .14			-25.65*
	(.18)			(15.60)
Age When Left School in Years	.47***			
	(.02)			
Time in Years	- .02	.03**	.77**	7.23**
	(.02)	(.01)	(.35)	(3.25)
Schooling		-.01	.19	20.06***
		(.01)	(.31)	(2.43)
Marital Status		.15***	2.53	
		(.04)	(2.10)	
Family Income Less Respondent's Income/1000[a]		.00	- .03	
		(.00)	(.08)	
If Employed Full-Time, time t (1=Yes; 0=No)		-.13***	-3.88**	66.04***
		(.04)	(1.57)	(13.77)
If Employed Part-Time, time t (1=Yes; 0=No)		-.10**	-2.91**	20.89*
		(.04)	(1.36)	(12.69)
If Unemployed, time t (1=Yes; 0=No)		.10*	4.10**	40.64*
		(.06)	(1.97)	(21.59)
If Ever in Military (1=Yes; 0=No)		-.06	4.34	90.40**
		(.06)	(2.88)	(18.80)
Local Unemployment Rate, time t+1/10		.01**	- .01	- .31
		(.00)	(.02)	(.20)
Unemployment Insurance Payments Divided by all Weeks Unemployed		.01**	.04	
		(.00)	(.04)	
Expected UE Duration				-15.43***
				(4.64)
Constant	- 1.02	.13	1.99	-103.32
R^2	.64	.10	.10	.21
Mean Dependent Variable	13.63	.29	8.72	213.00
Sample Size	955	955	275	955

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[a] In 1967 value terms for cents per hour, e.g. the mean of 213. is $2.13 per hour.

***, **, * significant at 1%, 5%, and 10% level, respectively, with a two-tailed t-test

TABLE 2 (continued)

REGRESSION COEFFICIENTS AND STANDARD ERRORS (IN PARENTHESES)

	Black Youth			
Independent Variable	Schooling	If UE	Weeks UE	Wage Rate per Hour[a]
Family SES	.03*** (.01)			
Scholastic Aptitude	.02** (.00)			- .26 (.73)
Census Division (1=Non-South; 0=South)	- .39** (.17)			28.55 (22.60)
Family Income/1000[a]	- .01 (.02)			
Health Limits on Work, at t or t+1 (1=Yes; 0=No)	- .30 (.49)			-31.62 (47.74)
Age When Left School in Years	.39*** (.04)			
Time in Years	- .05 (.05)	-.01 (.02)	.92 (.76)	5.50 (6.93)
Schooling		-.01 (.02)	- .22 (.82)	38.04*** (6.93)
Marital Status		.02 (.13)	3.04 (5.00)	
Family Income Less Respondent's Income/1000[a]		.01 (.01)	- .14 (.30)	
If Employed Full-Time, time t (1=Yes; 0=No)		-.24** (.10)	-2.61 (4.14)	93.25** (33.80)
If Employed Part-Time, time t (1=Yes; 0=No)		-.11 (.09)	.45 (3.20)	44.98* (26.18)
If Unemployed time t (1=Yes; 0=No)		.18* (.11)	7.84** (3.10)	-10.01 (58.25)
If Ever in Military (1=Yes; 0=No)		.41* (.22)	1.11 (5.60)	-164.19** (80.35)
Local Unemployment Rate time t+1/10		.01 (.01)	- .05 (.06)	1.00 (5.56)
Unemployment Insurance Payments Divided by all Weeks Unemployed		.02 (.01)	.17 (.31)	
Expected UE Duration				7.38 (7.96)
Constant	1.45	.40	6.75	-358.44
R^2	.59	.12	.15	.23
Mean Dependent Variable	12.52	.40	8.83	170.81
Sample Size	188	188	76	188

[a] In 1967 value terms for cents per hour.

***, **, * significant at 1%, 5%, and 10% level, respectively, with a two-tailed t-test

The second equation examines factors affecting youth unemployment incidence and conditional unemployment duration. Estimating the unemployment equations by OLS is clearly not as appropriate as some other estimation techniques, such as Tobit or logit, which accounts for the highly skewed unemployment duration distribution. That is, because 60% of the black youth and 70% of the white youth had no unemployment at all, the response surface is nonlinear, which means that the marginal impact of any variable is dependent on where on the distribution of unemployment it is evaluated. Cost constraints limited the use of the nonlinear estimation techniques. As an alternative, we use the same specification to examine separately the incidence and duration of unemployment. This procedure permits some discrimination between the marginal impacts of exogenous terms at different points on the distribution of unemployment duration.

Youth unemployment changes are probably due, in part, to aggregate demand swings, population changes, and other supply related changes, and changes in a third set of factors which are unique to youth and the labor markets they face. For white youth, we find the incidence and duration of unemployment are positively related to local unemployment rates after controlling for family income and time trend effects. The size of the effect is small, yet the positive sign suggests, perhaps, an "additional" worker effect that is puzzling.

For both race groups, unemployment insurance is seen to increase unemployment duration and incidence. But only the latter effect is significant.[18] Furthermore, since weeks unemployed entered the calculation of this variable, the estimate is negatively biased. Being interested in the transition from school to work of all young men, we cannot restrict the sample to persons holding a job prior to unemployment and calculate the ratio of UI benefits to net after tax employment earnings. We can, however consider the cost of a week of unemployment as potential earnings less weekly unemployment insurance benefits. The latter reduces the cost of unemployment and, thus, is expected to increase unemployment. Potential earning effects are approximated by schooling, census division, and previous experience gained in job holding and military experience. Of these variables, previous job holding stands out in magnitude and statistical significance, especially for white youth. To have held a job while in school raises the individual's potential earnings, which increases search costs, and, thus, reduces both the incidence and duration of unemployment. Furthermore, if full-time jobs pay more than part-time jobs, then we would expect that unemployment reductions would be greater for the former group, which is exactly what is found for whites and blacks alike. For example, for white youth who held a full-time job their last year in school, there is a 13% reduction in the probability of being unemployed relative to students who neither worked nor looked for work. The corresponding figure is 10% for holders of part-time jobs.

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[18] Ehrenberg and Oaxaca find that a UI benefit/earnings replacement ratio increase of .4 to .5 increases male youth unemployment duration by .2 weeks: see Ronald Ehrenberg and Ronald Oaxaca, "Unemployment Insurance, Duration of Unemployment and Subsequent Wage Gain," American Economic Review, vol. 66 (December 1976).

Finally, the persistence of unemployment is shown in the result that students who were unemployed when interviewed at time t experienced sharp increases in the duration and incidence of unemployment in the next twelve months.[19] The main point is that if youth unemployment reduction is a policy goal, then job holding while in school may reduce the unemployment immediately after school.

Some analysts may point out that youth unemployment in itself may or may not be wasteful. For example, if the youth via investing in unemployed job search raises his subsequent net earnings, then such youth unemployment may be privately, and even socially beneficial. We examine this possibility in the wage equation.

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[19] We checked on the possibility that some persons simply stayed unemployed for the entire year and, thus, account for the positive result. Yet only 1% to 2% of each race group had total annual UE durations of forty weeks, the maximum length.

Full regression model results by race for the hourly wage equation are presented in Table 2. Results are in terms of cents. For example, for black youth, an added year of schooling makes a direct positive marginal contribution of thirty-eight cents to the average wage per hour. Our main interest is with unemployment, schooling, and school labor market activity effects, and each is discussed in turn.

Sharp racial differences are found in unemployment impacts on the post-school hourly wage. For white youth expected unemployment duration is associated with significant and negative impact on W, whereas for black youth, a positive but nonsignificant impact was found. An added week of unemployment duration reduces the average white wage by 16 cents per added week of unemployment. Why the racial difference? Can we say unemployed search is productive for black youth? We do not know very much from the NLS data about the details of search behavior of the youth during unemployment. For example, direct marginal search cost differentials by race could account for part of the observed difference. A previous study of mine estimated weekly search costs for October 1971 of white youth at \$8.66 vs. \$3.90 per week for black youth.[20] If similar direct cost disparities are true for the NLS sample used in the present study and if search costs increase as time unemployed continues, then white youth wage demands may fall more sharply than

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[20] Stephenson, op. cit.

TABLE 3

MARGINAL CONTRIBUTION OF SELECTED VARIABLES ON HOURLY WAGE OF FIRST JOB AFTER LAST LEAVING SCHOOL

White	(1) Indirect Effect[a]	(2) Direct Effect	(3)=(2)+(1) Total Effect
Schooling	(-.16)·[(-.01)·(8.73)+(.19)·(.29)]= -.01	.20	.19
$LSFT_t$	(-.16)·[(-.13)·(8.73)+(-3.88)·(.29)]=.36	.66	1.02
$LSPT_t$	(-.16)·[(-.10)·(8.73)+(-2.19)·(.29)]=.27	.21	.48
$LSUE_t$	(-.16)·[(.10)·(8.73)+(4.10)·(.29)]= -.32	.41	.08
Black			
Schooling	(.07)·[(-.01)·(8.83)+(-.22)·(.40)]= -.01	.38	.37
$LSFT_t$	(.07)·[(-.24)·(8.83)+(2.61)·(.40)]= -.22	.93	.71
$LSPT_t$	(.07)·[(-.11)·(8.83)+(.45)·(.40)]= -.06	.45	.39
$LSUE_t$	(.07)·[(.18)·(8.83)+(7.84)·(.40)]=.33	-.10	.23

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[a] Indirect Effects of X_i are computed as
$\partial W/\partial E(UE)\cdot[(\partial P[UE]/\partial X_i)\cdot(E[UE\ Duration]/P[UE]-1)+(\partial UE\ Duration/\partial X_i)\cdot E(P[UE])]$

black youth wage demands and the racial difference in unemployment effects on W will be found. A similar result could be found if whites continually readjust downward their wage demands as new information is obtained regarding the nature of the wage offer distribution they face; yet, there is no convincing reason why white youth should be expected to be initially further malaligned with the reality of the market than black youth. Clearly, further analysis of this result is needed.

The impact on the postschool wage of years of schooling and in-school labor market activity involve direct and indirect estimates. In Table 3 are shown such marginal effects by race. For black youth, as mentioned, an added year of schooling adds thirty-eight cents to the postschool hourly wage; however, the indirect effect is such that the total marginal impact of an added year of schooling is thirty-seven cents. Racial comparisons suggest that the marginal value of an added year of schooling for white youth is about one-half that for blacks. Part of this difference is probably due to diminishing marginal returns to continued educational investments and the fact that the years of schooling in the sample was 13.5 for whites vs. 12.5 for blacks.

Having held a job during one's last year in school both reduces unemployment and raises the postschool wage level. These effects are relatively large and statistically significant. For white youth, since unemployment is wage depressing, the direct positive wage impact of having held a full-time or part-time job is increased by the indirect effect of previous job holding on expected unemployment. For example, $\partial W/\partial LSFT_t = .66$ from Table 2 in the UE duration equation if we express the result in dollars and cents. In addition, part of the $LSFT_t$ effect on W operates through the reduction in expected unemployment duration. The total effect on W is thus (.66 +.36) or one dollar and two cents. White young men who held a full-time job during their last year in school make more than one dollar an hour more than white young men who previously neither looked for work nor held a part-time job. Further such derivations are presented in Table 3.

Part-time job holding has about one-half the full-time job impact on W and merely having looked for work during one's last year in school may have some payoff relative to NLF students. Racial patterns are similar in terms of the relative marginal influence of previous full-time and part-time job holding. However, in school job holding increases the wage of white youth more than for black youth. Another racial difference arises because black unemployment is wage-augmenting, whereas, for white youth unemployment is wage depressing. The net wage gain to white youth who were unemployed in school is eight cents per hour over NLF youth versus the twenty-three cent differential for black youth.

SUMMARY

We began the analysis by considering the issue of how to define the transition from school to work. In a range of definitions we chose the first job after last leaving school. By selecting this point, we increased the average observed age and also increased the possibility that the line between school and work would become increasingly blurred. This point was selected, however, not to obfuscate the transition issue, but to choose that point that best marks a permanent leaving of full-time student status. Such a point may best serve the need to examine jobs leading to lifetime careers.

The analysis was considerably aided by the availability of the rich NLS panel data on young men. However, sample attrition, non-response to key questions, and the transition process selected all served to limit the final sample studied. Since the data covered the period from 1966 to 1971, military experience and time trend variables were added as control variables.

The major results of the analysis were obtained in an expanded human capital model. The expansion was (a) to include unemployment incidence or duration as an intervening equation between the standard schooling and wage rate equations and (b) to consider the impact on unemployment and wage rates of holding a job or looking for a job while in school. Job holding in school reduces later unemployment for white and black youth. Furthermore, previous job holding, especially full-time job holding while a student, sharply increases hourly wage rates on postschool jobs.

In terms of job search implications during the transition process, racial differences were found. In the sample, 40% of the black youth had some unemployment. For such youth, post-unemployment wage rates were higher than for other black youth. White youth, however, who experienced unemployment , had lower subsequent wages. While further research is needed regarding this important issue, the preliminary policy implication is that unemployment may not be either socially or privately wasteful to some black youth and that a policy of in school work experience might aid the transition process for both groups.

THE ESTABLISHMENT OF STABLE AND SUCCESSFUL EMPLOYMENT CAREERS: THE ROLE OF WORK ATTITUDES AND LABOR MARKET KNOWLEDGE

By: Paul J. Andrisani

ABSTRACT

This paper assesses the extent to which stable and successful employment careers are a function of the work attitudes and labor market knowledge of youths. The paper examines the work attitudes and labor market knowledge of youths, considers how they differ from their older and presumably more mature counterparts, and how they affect and are affected by successes and failures upon initial entry into the work force. The research summarized draws primarily from published works based on the National Longitudinal (Parnes) Surveys.

The data summarized clearly show the importance of positive work attitudes and adequate labor market knowledge for the establishment of stable and successful employment careers. Confidence in these findings is strengthened by the fact that the observed relationships were independent of individual differences among the youths studied in a wide range of skills, abilities, and demographic characteristics, and were supported by longitudinal data as well. The data also document persuasively the inadequacy of all types of labor market knowledge as youths cross the critical threshold from school to work--with blacks, females, and poor white youths possessing the least adequate knowledge. Yet, the data provide little empirical justification to consider youths' attitudes toward work as inadequate, immature (other than for lack of adequate labor market information), anti-work, or the cause of the unique labor market problems of youth. On the basis of the statistics for the late 1960s, youths' attitudes toward work were hardly dissimilar from those of older workers; they reflected considerable ambition in the setting of career goals, and they were shown to be influenced in an anti-work direction by unsatisfactory labor market experiences early in work careers.

INTRODUCTION

Referring to out-of-school and unemployed teenagers, Charles Silberman once wrote:

> Many of them appear to be unemployable: they are--or seem to be--uninterested in working, unwilling or unable to adjust to the routine and discipline of a job, and generally apathetic, sullen or hostile...teenagers also lack the psychological pressures that make the great majority of adult men prefer work to idleness...holding down a job

> is not necessarily a source of status, nor is unemployment a source of shame. On the contrary, in at least some city slums, teenage society displays a certain disdain for legitimate work.[1]

Quite similarly, on the basis of The Coleman Report's finding that a youth's attitude "was more highly related to achievement than any other factor in the student's background or school,"[2] James S. Coleman was prompted to write:

> ...internal changes in the Negro, changes in his conception of himself in relation to his environment, may have more effect on Negro achievement than any other single factor. The determination to overcome relevant obstacles, and the belief that he will overcome them...may be the most critical element in achieving equality of opportunity.[3]

Still further, Edward Kalachek's analysis of the youth labor market has also noted the potential importance of certain work attitudes for success in the world of work:

> Reports of operating manpower agencies stress the importance of attitudinal factors...Clients drawn from these groups are frequently characterized as alienated, discouraged, immature, lacking self-esteem, and not conversant with accepted middle-class work values. Counseling, efforts at building self-esteem, and emotionally supportive services are cited as essential elements in improving employability.[4]

Another potentially important but seldom researched factor in establishing stable and successful work careers is the adequacy of labor market knowledge available to youths.[5] Inadequate labor market knowledge is conceptually linked to work attitudes, since it implies a faulty perception of the operation of the labor market. When the parents, relatives, friends, teachers, or guidance counselors of youths--and of female and disadvantaged youths in particular--possess inadequate labor market knowledge, not only may this develop faulty perceptions among the youths, but it may shape important work attitudes in an anti-work direction as well.

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[1] C. Silberman, "What Hit The Teenagers?," Fortune, April 1965, as cited in E. Kalachek, The Youth Labor Market (Washington: National Manpower Policy Task Force Policy Papers in Human Resources and Industrial Relations No. 12, 1969), p. 74.

[2] J.S. Coleman, "Equal Schools or Equal Students?" in D.M. Gordon, ed., Problems in Political Economy: An Urban Perspective (Lexington: D.C. Heath and Co., 1971), p. 193, emphasis in original.

[3] Ibid.

[4] Kalachek, op. cit., p. 77.

It may, for example, preclude youths from adequately preparing for the careers to which they aspire. Or, as has long been the case with young women, it may cause them to aspire to and prepare for careers that they may later learn were not what they wanted or expected, or that were not readily available. In each instance, inadequate labor market knowledge may generate unrealistic career aspirations and expectations on the part of youths that are easily dashed when confronted with the harsh and oftentimes brutal realities of the world of work. The consequences for the ultimate establishment of stable and successful work careers quite obviously may be serious. In an economic system in which youths are presumably free to choose among various occupational and employment opportunities, the freedom to choose is indeed hollow in the absence of adequate labor market knowledge.

The principal purpose of this paper is to assess the extent to which stable and successful employment careers are a function of the work attitudes and labor market knowledge of youths.[6] A secondary purpose is to examine what the work attitudes of youths actually are, how they differ from those of their older and presumably more mature counterparts, and how they are affected by successes and failures upon initial entry into the work force. To a considerable degree, the research summarized in this paper draws upon published works from a unique set of longitudinal data for representative national samples of 10,000 American youths and 10,000 older workers during the second half of the 1960s--namely, the National Longitudinal Surveys.[7]

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[5] H.S. Parnes and A.I. Kohen, "Occupational Information and Labor Market Status: The Case of Young Men," Journal of Human Resources, vol. 10, no. 1 (Winter 1975), pp. 44-55. See also: G. Stigler, "Information in the Labor Market," Journal of Political Economy, vol. 70, no. 5 (Supplement, October 1962), pp. 94-105.

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[6] That is, the extent to which stable and successful employment careers are a function of work attitudes and labor market knowledge rather than of traditional human capital and demographic variables most typically considered in labor market studies. These include such variables as age, race, sex, education, general and specific training, institutional and on-the-job training, health, marital status, region of residence, type of local labor market, etc. In the human capital model of income distribution developed by Becker and Mincer, labor market success, particularly in terms of earnings, is a function of investments in an individual's productive skills and abilities, comprising one's stock of human capital. Variables listed above that do not reflect human capital or supply-side characteristics, are generally presumed to reflect demand-side or labor market effects. See: G. Becker, Human Capital (New York: Columbia University Press, 1964)and J. Mincer, "The Distribution of Labor Incomes: A Survey with Special References to the Human Capital Approach," Journal of Economic Literature, vol. 8, no. 1 (March 1970), pp. 1-26.

[7] Begun in 1966, the NLS is a ten-year longitudinal study of the work experience of four age-sex cohorts of the population, each of which consists of roughly 5,000 respondents: men forty-five to fifty-nine, women thirty to forty-four, and young men and women fourteen to twenty-four years of age at the date of the initial interviews. The samples in each case constitute a representative national probability sample of the noninstitutionalized civilian population of the particular cohort as of the first survey date. The samples were drawn and personal interviews conducted by the U.S. Bureau of the Census for The Ohio State University Center for Human Resource Research under separate contracts with the U.S. Department of Labor. For an overview of the entire NLS data base, including a complete description of the sampling design, interviewing procedures, and the host of included variables, see: The National Longitudinal Surveys Handbook (Columbus: The Ohio State University Center for Human Resource Research, 1975).

In the section to follow, the adequacy of labor market knowledge available to youths and the consequences of inadequate knowledge will be explored. Then in the third section, the paper will explore what the work attitudes of youths actually are, and how they differ from those of older workers. In the fourth section, the empirical evidence relating to whether the work attitudes of youths have any bearing on their early labor market experience will be examined. The fifth section then examines the empirical evidence relating to the effects of early labor market experience on work attitudes, and the final section concludes with a brief discussion of the implications of the research reported herein.

THE ADEQUACY AND IMPORTANCE OF LABOR MARKET KNOWLEDGE

According to Parnes, there are four types of labor market knowledge that should be considered in discussions of this sort.[8] The first and second are essentially the distinction between "general" and "specific" human capital investments made by Becker.[9] Characteristically, general labor market information is a highly substitutable good with a market of substantial breadth. It comprises, for example, short run as well as long run knowledge of alternative occupations, industries, geographic locations, relative income and job security prospects, avenues of preparation for various jobs, and a host of other characteristics of the alternative opportunities available in the labor market. In contrast, specific labor market information in its most limited form is the opposite side of the coin--i.e., at the limit it is confined to a single market and to even a single firm.

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8. H.S. Parnes, "Improved Job Information: Its Impact on Long-Run Labor Market Experience," in Seymour L. Wolfbein, ed., Labor Market Information for Youths (Philadelphia: Temple University School of Business Administration, 1975), pp. 163-83. Much of the material in this section of the paper summarizes a recent conference on Improving Labor Market Information for Youth held at Temple University on October 21-22, 1974. The proceedings were published in the volume cited here.

9. Becker, op. cit.

Clearly the former is more important than the latter in preparing youths for the world of work. It may be the latter, however, which is of relatively greater importance to youths after adequately preparing for work--i.e., during the critical period of settling upon a specific firm.[10]

The third type of labor market information includes knowledge of the relative advantages and disadvantages of various job search strategies and institutions--e.g., public and private employment services, trade unions, and various public and private social welfare agencies. Finally, the fourth type of labor market information of relevance to workers, particularly youths, is what Parnes calls "an understanding of the regimentation that is inherent in greater or lesser degree in most work situations."[11] This understanding includes knowledge of the "importance to success of regular attendance, punctuality, good work habits, concern for the objectives of the employing establishment, and conformity to accepted standards of dress and behavior."[12] Irrespective of whether one endorses all of these or whether all are essential to satisfactory performance on all jobs, it is Parnes' view that failure to alert youths to such facts of industrial life would indeed be a disservice to them.

Whichever type of labor market knowledge is considered, there is persuasive evidence that many youths take their first jobs in a very haphazard manner, and that initial decisions often have a lasting impact.[13] Mangum estimates that more than one million youths initially entering the labor force each year encounter difficulty assimilating into the world of work, with blacks considerably overrepresented within this group.[14] In the very tight labor market of 1967, for instance, the average rate of unemployment among nonwhite teenagers was 26.5%, a level seven times the national average of 3.8%.[15] Furthermore, there is little doubt of the inadequacy of all types of labor market knowledge among youths--particularly blacks, young women, poor whites, and those in rural labor markets.[16] Singell's follow-up of high school graduates in Detroit a year after initial entry into the labor market is typical in its observation that:

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[10] There is considerable evidence, for example, that the differential in unemployment rates between adults and youths results mainly from greater turnover, and thus a higher incidence of unemployment. See M.S. Feldstein, "Lowering the Permanent Rate of Unemployment," a study prepared for the use of the Joint Economic Committee, Congress of the United States, 93rd Congress, 1st Session, September 1973 (Washington: U.S. Government Printing Office, 1973), pp. 17-18.

[11] Parnes, op. cit., p. 167.

[12] Ibid.

> Most youths had not "chosen" a job in any real sense, but had either drifted into one or had taken it because they could find no other...Furthermore, the youths exhibited extremely vague knowledge about wages,

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[13] Ibid., p. 169. Also see, for example: P.J. Andrisani, An Empirical Analysis of the Dual Labor Market Theory (Columbus: The Ohio State University Center for Human Resource Research, 1973); P.E. Davidson and H. Anderson, Occupational Mobility in an American Community (Stanford: Stanford University Press, 1937); M.D. Ornstein, Entry into the American Labor Force (New York: Academic Press, 1975); J. Piker, Entry into the Labor Force: A Survey of Literature on the Experiences of Negro and White Youths (Ann Arbor: Institute of Labor and Industrial Relations, University of Michigan--Wayne State University, 1969); Kalachek, op.cit.; and L. Reynolds, The Structure of Labor Markets (New York: Harper and Brothers, 1951).

[14] G.L. Mangum, "Second Chance in the Transition from School to Work", in P. Arnow et al., eds., The Transition from School to Work, (Princeton: The Industrial Relations Section, Princeton University, 1968), pp. 231-69.

[15] P. Arnow et al., "The Transition from School to Work", in The Transition from School to Work, op.cit., p.3.

[16] Parnes and Kohen, op. cit.; P. Brito and C. Jusenius, "Occupational Expectations for Age 35", in F.L. Mott et al., eds., Years for Decision, IV, (Columbus: The Ohio State University Center for Human Resource Research, 1977), pp. 113-139.

> working conditions, steadiness of employment, and chances of advancement when they accepted their first job.[17]

Years earlier, Reynolds' classic study of the New Haven labor market produced results that were essentially the same: "Most youngsters (and their parents) approached the choice of a first job with no clear conception of where they were going..."[18] Other studies from Davidson and Anderson in 1937 to a very recent and comprehensive one by Michael Ornstein are equally consistent on the point.[19] When a sample of sixty-nine vocational educators in twenty-two urban areas were asked to discuss the labor market problems of high school graduates, for instance, more than half reported that youths have unrealistic aspirations and expectations concerning work, and more than 40% felt that poor attitudes and lack of responsibility, maturity, and self-discipline were part of the problem.[20]

Furthermore, there is little reason to be any more sanguine about the adequacy of labor market information available to postsecondary students. Perhaps the only study to be impressed by the adequacy of labor market knowldege of any type is that of Richard Freeman.[21] As Parnes has noted, however:

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[17] L.D. Singell, Some Private and Social Aspects of the Labor Mobility of Young Workers", The Quarterly Review of Economics and Business, vol. 6, no. 1 (Spring 1966), p. 23.

[18] Reynolds, op. cit.,pp. 213-14.

[19] Davidson and Anderson, op. cit.; and Ornstein, op. cit.

[20] A.P.Garbin, R. Campbell, D.P. Jackson, and R. Feldman, Problems in the Transition from High School to Work as Perceived by Vocational Educators (Columbus: The Ohio State University Center for Vocational and Technical Education Research Series No. 20, 1967), pp. 49-50.

[21] R. Freeman, The Market for College-Trained Manpower: A Study in the Economics of Career Choice (Cambridge: Harvard University Press, 1971).

> ...even Freeman's data show that a sixth of the undergraduates and an eighth of the graduate students believed that the information available to them at the time they made their career choices was inadequate, while another fourth regarded it as "barely adequate". Moreover, other investigators of the process of career choices among college students have drawn generalizations different from those of Freeman. A study of almost two thousand male and female members of the 1972 graduating classes of five Pennsylvania colleges and universities reported that...two-fifths of the students reported that they were "not too aware" and one-fifth that they were "not at all aware" of the job market in the field of their major at the time they selected it.[22]

Of what empirical consequence are such differences in labor market knowledge among youths? One of the very few studies to examine the issue is that of Parnes and Kohen.[23] Using longitudinal data on male youths from the National Longitudinal Surveys, a multivariate statistical model, and a multi-item measure of occupational information, Parnes and Kohen found that scores in 1966 on the NLS measure of labor market knowledge were significantly correlated with the hourly wage rates and occupational attainment of the youths two years later. Moreover, the results were obtained for young black men and their young white counterparts, with statistical controls for such human capital and demographic variables as years of schooling, IQ, socio-economic status, quality of high school attended, years of work experience, health status, region of residence, and rural versus urban residence. As these researchers correctly observed:

> Indeed, there is reason to believe that these findings understate the total contribution of the kinds of labor market information measured by the test, since they ignore the indirect effects such knowledge may have on occupational status and wages via its effect on educational attainment.[24]

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[22] Parnes, op. cit., p. 171.

[23] Parnes and Kohen, op. cit.

[24] Parnes, op. cit., pp. 175-76.

Given the empirical results, what then would be the social consequences of improved labor market knowledge? Would it simply mean a reshuffling of youths among jobs as the gains of those with superior labor market knowledge are transferred to those youths with inadequate knowledge? Theoretically, the answer to the second question is no, since improved labor market knowledge implies movement of the labor market from disequilibrium to equilibrium--with the resultant reallocation of labor being more nearly optimal as youths and older workers become better matched with the jobs for which they are best suited. In theory, an optimal allocation of human resources means that no one could improve his or her utility or contribution to the total social product by making any job change. Thus, the reallocation should lead to increased productivity and individual welfare. Second, a more equitable distribution of labor market knowledge among youths should reduce race, sex, and class differences in unemployment and income, since greater labor market knowledge has been shown in the NLS data both to be disproportionately possessed by white, male and higher SES youths and to be significantly linked with a successful transition from school to work.

Third, improved labor market knowledge would enhance the operation of competitive forces in the labor market. Thus, for example, some employers would feel a stronger need to improve the quality of work to keep employees, and the labor market would be better able to reallocate labor more efficiently in response to technological shifts and to shifts in consumer preferences and tastes. Increased competition should act to reduce levels of unemployment and to shift the Phillips curve down to the left. The latter result might be particularly effective for reducing youth unemployment, since it would reduce youth turnover and frictional unemployment which play so large a role in the differential between youth and adult unemployment rates.[25]

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[25] Feldstein, op.cit., pp. 17-18.

WHAT ARE THE ATTITUDES OF YOUTHS TOWARD WORK AND ARE THEY DIFFERENT FROM THOSE OF THEIR ELDERS?

By way of the data for the four NLS cohorts covering the 1966-1972 period, it is possible to examine a number of the work attitudes of male and female youths and to compare them with those of their older and presumably more mature counterparts. When respondents who were in the labor force at the initial surveys were asked whether they would continue to work if by some chance they were to get enough money to live comfortably without working, 73-78% of the older men, 78-82% of the younger men, 58-68% of the older women, and 59-70% of the younger women replied that they would continue to work.[26] The high degree of reported commitment to work and the absence of age differences in responses to this question are entirely consistent with responses to eleven other attitudinal items more directly probing commitment to the Protestant work ethic. For each of the eleven items there tended to be virtually no age differences in the tendency to ascribe credence to the Protestant work ethic belief that hard work leads to success.[27]

With respect to their occupational goals, young men and women in 1966 aspired to considerably greater occupational heights than either they or their older counterparts had attained.[28] Two to three years later, as the youths aged and gained more work experience, occupational aspirations in the aggregate changed little for white or black, male or female youths. Coded in terms of the Duncan index of occupational status, white young men in 1966 aspired to occupations averaging 55 points (on a scale from 0 to 100), while black young men aspired to occupations averaging only 46 points. Among the young women, whites in 1968 aspired to jobs averaging 53 points, while blacks aspired to jobs averaging 48 points. Of the youths who worked at each survey date, and who were not enrolled in school, the actual occupational attainments of the white and black young men were 32 and 19 points respectively, in 1966, and 44 and 30 points respectively for white and black young women. Of those employed in the two older NLS cohorts at each survey date, the actual occupational attainments of the white and black men were 40 and 18 points respectively, and 43 and 29 points respectively for white and black women.

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[26] This portion of the paper draws heavily from Chapters 3,4, and 5 of a research volume on the relationship between work attitudes and labor market experience: P.J. Andrisani, with the assistance of E. Applebaum, R. Koppel, and R.C. Miljus, Work Attitudes and Labor Market Experience: Evidence from the National Longitudinal Surveys (New York: Praeger Publishers, 1978).

[27] P.J. Andrisani, "Internal-External Attitudes, Personal Initiative, and Labor Market Experience," in Andrisani et al., op. cit., chapter 4.

[28] P.J. Andrisani, "Work Attitudes and Labor Market Experience: Other Findings," in Andrisani et al., op. cit., chapter 5.

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Yet while aspirations were high, 29% of the young white men and 37% of the young black men perceived their chances of attaining their goals as only "fair" at best.[29] Furthermore, the gap between aspirations and actual occupational attainment was much greater for black youths than white youths. Relative to their actual occupational attainment, or relative to the occupational attainment of their counterparts in the older cohorts, black youths aspired to greater heights than white youths. Within race groups, however, young men and women differed little on the average in their occupational goals. Thus, while blacks and female youths may be unrealistic in their occupational goals, they can hardly be accused of lacking ambition in setting their goals.

When asked whether "wages" or "liking the work" was the more important aspect of a good job, better than half within nearly every NLS age-sex-race group responded "liking the work."[30] Only among black men were preference differences between the younger and older NLS cohorts more than four percentage points, and even in the one instance the age differences are hardly suggestive of substantially different work attitudes between youths and their elders. When asked to report the aspects of their jobs that they liked best, white and black, male and female youths were most inclined to mention "the work itself."[31] Other frequently mentioned factors were economic aspects of work and interpersonal relationships. On balance, their responses were not dissimilar to those of older workers. Much the same, when asked to cite the specific aspects of work disliked most, youths reported a wide range of factors, ultimately constituting patterns quite similar to those reported by their elders.

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[29] Ibid.

[30] Ibid.

[31] Ibid.

How satisfied were youths with their jobs, particularly in relation to the reported job satisfaction of their older counterparts? Remarkably few youths expressed a disliking for their jobs at any survey date between 1966 and 1972.[32] Fewer than 15% of the employed respondents within any of the NLS age-sex-race groups reported that they disliked their job somewhat or disliked it very much. At some points during the period, however, age differences in degree of job satisfaction did tend to be substantial, particularly between young and middle-aged black men. For example, in 1966 only 34% of young black males who were out of school and working reported themselves to be highly satisfied with their jobs, in contrast to 51% among their older counterparts. For the most part, age differentials in levels of job satisfaction narrowed during the 1966-1972 period.

In sum, with the possible exceptions of their occupational aspirations and degree of job satisfaction, the NLS data provide little evidence that the work attitudes of youths are essentially different from those of their older counterparts. It also is at odds with the data to suggest that youths, particularly young blacks and young women, lack ambition in setting their employment goals. That their goals tend to be so high may be a cause for concern, especially for the adequacy of their labor market knowledge. It is quite possible that at least a part of the job dissatisfaction, high turnover, and high unemployment rates of youths reflects their high--and perhaps unrealistic--occupational aspirations, which in turn may reflect the inadequacy of their labor market information.

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[32] P.J. Andrisani, "Levels and Trends in Job Satisfaction, 1966-1972," in Andrisani et al. op. cit., Chapter 3.

THE EFFECTS OF WORK ATTITUDES

The NLS data provide clear evidence of the importance of work attitudes in conditioning subsequent labor market success among youths.[33] For example, the relationship between job dissatisfaction and turnover is unmistakable, suggesting that highly dissatisfied youths were from eighteen to forty-two percentage points more likely than comparable youths who were highly satisfied with their jobs to change employers subsequently.[34] Moreover, since youths stand less to lose, the data not suprisingly show a stronger relationship between job dissatisfaction and turnover among youths than older workers. The evidence also suggests that job dissatisfaction imposes considerable costs on youths in terms of increased unemployment, decreased labor force participation, and below-average growth in annual earnings. Furthermore, the data show that the costs of job dissatisfaction reflect more than the costs of turnover which were borne disproportionately by dissatisfied youths. Among comparable white youths who did not change employers, there is considerable evidence that those dissatisfied with their jobs were below-average in occupational and earnings advancement. Among those who changed employers, the dissatisfied were generally above-average in weeks of unemployment as well. The evidence thus suggests that job dissatisfaction often leads to reduced productivity and to job changing that has been less carefully planned than that which takes place among comparable youths more highly satisfied with their jobs.

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[33] P.J. Andrisani, "Introduction and Overview," in Andrisani et al., op. cit., Chapter 1. To assure that workers were comparable regressions were performed separately for each of the eight NLS age-sex-race groups with control variables for such human capital and demographic variables as education, formal training, years of work experience, seniority with employers, health, marital status, region of residence, and type of local labor market.

[34] P.J. Andrisani, "Differences Between Satisfied and Dissatisfied Workers in Subsequent Labor Market Experience," in Andrisani et al., op. cit., Chapter 2.

The NLS data also provide strong and consistent evidence that male youths with an "internal attitude"--i.e., who perceive payoffs to their initiative--subsequently experience greater labor market success than their contemporaries who perceive less payoffs to their efforts.[35] The Coleman Report found that differences in these attitudes were a more important factor in explaining achievement among black youths than all of the differences in school quality and family background combined. Internal-external attitudes are also of interest because of a similarity to the concept of alienation, and because some have maintained that racial differences in labor market experience stem mainly from racial differences in work ethic attitudes closely resembling the internal-external distinction.

While the NLS data suggest that attitudinal change among youths who perceive little payoff to their personal initiative would result in greater initiative and more successful labor market experience, there is little reason to suspect that the elimination of age differences in these attitudes would have an appreciable impact upon age differences in work experience. In the main, youths differ only minimally from older workers in these attitudes.

More specifically, the NLS data show that white and black young men with an internal outlook in 1968 were in the better occupations and had higher hourly earnings two years later than comparable youths with an external attitude. In the regressions which come closest to identifying a true causal relationship, those examining subsequent growth in earnings and occupational advancement, internals of both race groups were also more likely to outdistance comparable externals both in terms of growth in hourly earnings and occupational advancement.

As for the magnitude of the relationships, those male youths who were "slightly internal" in 1968, a score of eight on the attitudinal measure, were estimated to have enjoyed a 12% differential in hourly earnings two years later over comparable youths who were "slightly external" in outlook, a score of twelve. Also, their average hourly earnings were estimated to have advanced by $.20 per hour more between 1968 and 1970 than the wage rates of comparable youths who were "slightly external."

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[35] Andrisani, "Internal-External Attitudes, Personal Initiative, and Labor Market Experience", op. cit.

With respect to racial differences, there were only two cases where the regression coefficients differed between white and black young men. In the first, it appears that these attitudes are more strongly related to annual earnings two years later for whites than blacks. In the second, it appears that the attitudes are more strongly related to occupational advancement for blacks than whites.[36] Moreover, the elimination of racial differences in internal-external attitudes among youths apparently would not appreciably reduce racial differences in their labor market experience, since these are only slight differences in these attitudes between white and black youths of either sex.

The only aspect of labor market experience examined with the NLS data that was not significantly related to internal-external attitudes for either white or black young men is growth in annual earnings. Although the data do not address the issue directly, this may reflect greater investments (foregone earnings) that youths with an internal attitude have made in order to realize their advantage two years later in hourly earnings and occupational attainment. Greater investments in job search and mobility, in particular, may explain why youths with an internal attitude outdistanced comparable youths with external outlooks in growth in hourly earnings and in occupational advancement without exceeding their growth in annual earnings.

Differences among otherwise comparable workers in other work-related attitudes--e.g., career goals, expectations of achieving goals, commitment to work, attitudes toward one's work role, attitudes toward propriety of working mothers, and spouse's attitude toward one's work role--have also been shown with the NLS data to bear a relationship to subsequent labor market experience.[37] In particular, the career goals of male youth, both black and white, and a belief that one's goals are attainable, are linked to a successful transition from school to work.[38] The NLS data show that white and black male youths with greater occupational aspirations in 1966 advanced more in annual earnings over the next three years than comparable youths who were less ambitious. Among the white youths, occupational aspirations were also related to occupational advancement, to advancement in hourly rates of pay, to the reception of formal occupational training, and to fewer weeks of unemployment. Among the black youths, the more ambitious were also more inclined to receive formal occupational training, but there is no evidence that they were more likely to advance occupationally, or in wage rates, or that they were any less likely to encounter unemployment. One likely explanation why the aspirations of black youths are not as closely linked to subsequent labor market success as for whites is of course that employers discriminate against blacks. Additional or alternative explanations include the fact that the black youths are more deficient in labor market information.

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[36] Ibid.

Other regression results with the NLS data for male youths reinforce these findings. White and black young men with greater self-confidence had considerably greater subsequent success in the labor market during the transitional period from school to work than comparable youths with less self-confidence. Those black and white young men who perceived their chances of attaining their career goals as "excellent" in 1966, for example, advanced occupationally from seven to eight points more (on the Duncan

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[37] Andrisani, "Work Attitudes and Labor Market Experience: Other Findings," op. cit.: and E. Appelbaum and R. Koppel, "The Impact of Work Attitudes Formed Prior to Labor Market Entry on the Process of Early Labor Market Attainment," in Andrisani et al., op. cit., Chapter 6.

[38] Andrisani, Ibid.

Index) over the next three years than comparable youth who initially rated their chances as "poor". In addition, their annual earnings advancement over the next three years exceeded that of those less confident by $825 to $1150, and the more confident youths experienced three to four fewer weeks of unemployment as well. Among the white youths, the more confident ones also had considerably greater advancement in hourly rates of pay, fewer weeks out of the labor force, and were more prone to be geographically mobile.

It thus seems clear on the basis of the NLS data that the work attitudes of youths are important factors in understanding the process of establishing stable and successful employment careers. The NLS results summarized above show that the effects of the work attitudes of youths are independent of the effects of a wide range of more traditional labor market variables--e.g., human capital and demographic variables. They also show that the attitudes have effects on subsequent labor market experience, thus showing that cross-sectional relationships between work attitudes and labor market experience do not reflect exclusively the influence of the latter on the former. Indeed, there is reason to believe that these findings may understate the real effect of work attitudes on the labor market experience of youths, since it has not been possible to isolate the indirect effect of the attitudes on experience via their effect on investments in education and other forms of human capital. Nor has it been possible to estimate the extent to which the effects are understated by using such crude and simplistic, and thus inherently less reliable, measures of work attitudes as are available in the NLS.

Finally, it should also be noted that these findings are quite consistent with those of other studies of youths from more restricted samples. According to Sewell and Hauser's study of Wisconsin youths, for instance:

> . . . the inclusion of the social psychological variables has resulted in a more complete explication of the attainment process in the educational, occupational, and economic spheres . . . The expanded model we have discussed in the present chapter has illuminated the rather complex process by which the effects of socioeconomic

> background on educational, occupational, and economic attainments are mediated by various social psychological experiences. [39]

THE EFFECTS OF LABOR MARKET EXPERIENCE ON THE WORK ATTITUDES OF YOUTHS

Recent studies with the NLS data for youths have examined the extent to which labor market experiences early in work careers affect the occupational aspirations of youths.[40] In one of them, changes in occupational aspirations among the young men between 1966 and 1969 have been regressed on their occupational status and hourly earnings between 1966 and 1969.[41] In addition, to assure that comparable young men were being considered, control variables for individual differences at the beginning of the period were also included in the regressions--e.g., for years of schooling, completion of formal occupational training, years of general on-the-job training, years of service with 1966 employer, health status, marital status, region of residence, degree of urbanization in the local labor market, and initial levels of occupational aspirations, work commitment, and preferences for noneconomic versus economic rewards.

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39. W. H. Sewell and R. M. Hauser, "Social Psychological Factors in Achievement," in W. H. Sewell and R. M. Hauser, *Education, Occupation, and Earnings: Achievement in the Early Career* (New York: Academic Press, Inc., 1975), pp. 111 and 90. See also: R. M. Gasson, A. O. Haller, and W. H. Sewell, *Attitudes and Facilitation in the Attainment of Status* (Washington: The American Sociological Association Rose Monograph Series, 1972); A. C. Kerckhoff, *Ambition and Attainment: A Study of Four Samples of American Boys* (Washington: The American Sociological Association Rose Monograph Series, 1974); A.O. Haller and A. Portes, "Status Attainment Process," *Sociology of Education*, vol. 46 (Winter 1973), pp. 51-91; and R. C. Edwards, "Individual Traits and Organizational Incentives: What Makes a 'Good' Worker?" *Journal of Human Resources*, vol. 11, No. 1 (Winter 1976), pp. 51-68.

40. Brito and Jusenius, *op. cit.*; Andrisani et al., *op. cit.*, Chapter 5; and J. Grasso with A. I. Kohen, "The Formation and Revision of Goals by Young Men," in A. I. Kohen et al., *Career Thresholds*, IV, (Columbus: Ohio State University Center for Human Resource Research, 1977), pp. 15-52.

41. Andrisani et al., *op. cit.*, Chapter 5.

Among white and black young men, as previously noted, there were virtually no changes in occupational aspirations, on the average, between 1966 and 1969, despite the fact that many youths crossed the critical threshold from school to work during the period. For young men who were employed as wage and salary workers and not enrolled in school during the 1966-1969 period, the subset of the total cohort included in these regressions, aspirations on the average changed by only two-thirds of one point among the white youths and by less than one-twentieth of one point among the black youths. Nonetheless, the evidence suggests that more favorable work experience leads to more favorable work attitudes and that unsuccessful work experience leads to discouragement and reduced aspirations.

Among both race groups, for example, those in the better occupations initially, and those who advanced the most occupationally during the period, raised their occupational aspirations between 1966 and 1969, while those in the lowest status jobs initially and those who advanced the least or regressed occupationally reduced their aspirations between 1966 and 1969. Furthermore, among black youths, those in the better paying jobs initially and those whose earnings grew the most during the period became more ambitious in career objectives between 1966 and 1969, while those in the low-paying jobs initially and those whose earnings advanced the least reduced their occupational goals during the period. The influence of earnings was so strong, in fact, that those black youths who differed by $1.00 in initial hourly earnings or in growth in hourly earnings, differed in changes in their occupational aspirations by 5.5 and 3.4 points respectively on the Duncan Index.

Other variables also related to changing aspirations included years of work experience, health, and suburban residence. The longer the youths had been out of school in 1966, and hence the greater their experience in the world of work, the less likely they were to revise their aspirations upward and the more likely they were to revise them downward. Among blacks, those with a health problem in 1966, whose career goals at that point may have been most seriously in doubt, raised their aspirations by fourteen points more during the period than comparable youths with no health limitation in 1966. Among whites, those residing in suburban areas raised their aspirations by three points more than those youths residing in rural or central city locations.

Other published data from the NLS have shown that family background, ethnic origin, schooling, and the extent of a youth's labor market information have a considerable impact on occupational aspirations while youths are still in school.[42] Still further, Brito and Jusenius show that occupational goals of the NLS young women were significantly related to the young women's family backgrounds and education, as well as to their actual labor market experience.[43] Quite similarly, Grasso and Kohen report that the occupational goals of NLS male youths enrolled in high school in 1966 were significantly linked to their labor market knowledge and IQ, and--in the case of the whites only--to their family backgrounds.[44] In their own words:

> ...measures of information (e.g., amount of schooling, availability of reading material in the home) and of opportunities and constraints (e.g., encouragement by parents, school personnel and peers) also contributed to explaining variations in levels of aspiration ... While growing up in a large urban area was associated with decidedly higher educational and occupational goals, the evidence is that these goals are likely to be incongruent with each other and unrealistically high... While work experience gained during high school was not found to be related to goal level, it is notable that high school youth with considerable work experience are less likely, all other things equal, to express educational and occupational goals that are incongruent with one another ... More able students (IQ) not only expressed higher goals, but at least among young whites were also more likely to profess congruent and realistic goals and were more optimistic about being able to achieve their goals. 45

Thus it appears that while work experience shapes work attitudes, numerous other forces have a considerable impact as well. As a final

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42. H. S. Parnes et al., Career Thresholds, I, U. S. Dept. of Labor Manpower Research Monograph No. 16 (Washington: U. S. Government Printing Office, 1970), pp. 178-85.

43. Brito and Jusenius, op. cit., pp. 121-32.

44. Grasso and Kohen, op. cit., pp. 28-9.

45. Ibid, pp. 46-7.

illustration of the point, while there are vast age-sex-race differences in labor market experience, differences in internal-external attitudes on the basis of age, sex, and race are virtually nonexistent.[46]

CONCLUSIONS

The principal purpose of this paper has been to assess the extent to which stable and successful employment careers are a function of the work attitudes and labor market knowledge of youths, rather than of traditional human capital and demographic variables most typically considered in labor market studies. A secondary purpose has been to examine what the work attitudes of youths actually are, how they differ from those of their older and presumably more mature counterparts, and how they are affected by successes and failures upon initial entry into the work force. To a considerable degree, the research summarized in this paper draws upon published works from a unique set of longitudinal data for representative national samples of 10,000 American youths and 10,000 older workers--during the second half of the 1960s --namely, the National Longitudinal Surveys.

The empirical findings reported here show clearly the importance of positive work attitudes and adequate labor market knowledge for the establishment of stable and successful employment careers. Confidence in these findings is strengthened by the fact that the observed relationships were independent of individual differences among the youths studied in a wide range of skills, abilities, and demographic characteristics, and were supported by longitudinal data as well.

The data are also persuasive in documenting the inadequacy of all types of labor market knowledge as youths cross the critical threshold from school to work--with blacks, females, and poor whites possessing the least adequate knowledge. The fact that so much of the differential in unemployment rates between youths and adults results from greater incidences of unemployment among youths, rather than longer average spells of unemployment, in itself lends support to the need for more adequate labor market knowledge for youths. Moreover, the need to adequately prepare for careers long before initial entry into the work force argues for the dissemination of more adequate labor market information years in advance of actual labor market entry.

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[46] Andrisani et al., op. cit., Chapter 4.

The role of positive work attitudes for youths in the establishment of stable and successful work careers is less straightforward and unambiguous. During the late 1960s, youths who were ambitious, self-confident, committed to the Protestant work ethic that hard work leads to success, and who liked their jobs were more likely to establish stable and successful employment careers than comparable youths who felt otherwise. Yet there is little empirical justification to consider youths' attitudes toward work as inadequate, immature (other than for lack of adequate labor market information), anti-work, or the cause of the unique labor market problems of youths--at least on the basis of the statistics for the late 1960s. The work attitudes of youths measured in the NLS data were hardly dissimilar from those reported by older workers during the same period, and there is little empirical reason to suspect that youths on the whole lacked ambition during the late 1960s. Quite the contrary, the data suggest that inadequate labor market knowledge may produce a lack of realism among youths which leads in the aggregate to overambition rather than to a lack of ambition. It may indeed be inadequate labor market information which at least in part is responsible for the relatively higher levels of job dissatisfaction, turnover, and frictional unemployment observed among youths.

The evidence is also clear and convincing in showing that unsatisfactory labor market experiences early in work careers can influence youths' attitudes in an anti-work direction, thereby reducing the chances of ever establishing a stable and successful employment career. As Glen Cain has noted:

> Conventional economists have customarily viewed 'tastes' as exogenous and as one of the (unexplored) causal variables explaining such labor market achievements as employment, wage earnings and occupational achievement. The contribution of the Dual-Radical theories lies not in reiterating the potential importance of tastes in their research, but rather in pointing out how tastes may be endogenous and a result of one's labor market achievements. Thus, the effects of discrimination, other systematic factors, or even random factors

> that can start workers off in the secondary sector (that is, in 'bad' jobs), can shape tastes in an anti-work direction and thus reinforce the disadvantaged position of low-wage workers. 47

Thus, while work attitudes among youths appear important for the establishment of stable and successful employment careers, they hardly appear to be the principal cause of the unique labor market problems of youths. It seems highly unlikely that secular changes in the work attitudes and labor market knowledge of youths since the late 1960s could have had nearly as much to do with the worsening youth labor market situation of this decade as have such factors as changes in the number of youths looking for work and changes in the aggregate demand for labor. While it is unclear how much a part the work attitudes of today's youths have to do with the worsening youth labor market situation, it seems entirely clear what effect the loose labor markets of the 1970s have had on youths' attitudes toward work. Loose labor markets lead to a deterioration of positive work attitudes among youths which makes it all the more difficult to establish stable and successful employment careers. The loose labor markets of the 1970s can be expected to have had such an effect.

The implications for public policy are essentially twofold. First, increase the availability of all types of labor market information early in the life cycle, particularly for young blacks, young women, and poor white youths. Second, employment and training programs could seek to offset the negative, anti-work effects of loose labor markets and the pathology of the youth labor market on the work attitudes of youths. Long run incentives to work, and giving good reason for youths to believe that hard work and human capital investments now will eventually pay off in the labor market are clearly needed. The anti-work effects of the loose labor markets in the 1970s on youths' attitudes can be particularly important for many years to come. After all, the anti-work effects are being felt

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47. G. G. Cain, "The Challenge of Dual and Radical Theories of the Labor Market to Orthodox Theory", paper presented at the American Economic Association Annual Meetings, San Francisco, December, 1975, pp. 18-9, emphasis in original. (mineographed).

by one of the largest cohorts of youths to ever enter the labor market. In addition, this cohort of baby boom youngsters faces what may possibly be, relative to their aspirations, perhaps the worst set of labor market constraints ever to have faced preceding generations of youths.

ECONOMIC AND SOCIOCULTURAL VARIABLES AFFECTING RATES OF YOUTH UNEMPLOYMENT, DELINQUENCY AND CRIME

By: Daniel Glaser

ABSTRACT

Research has repeatedly found a direct correlation between unemployment rates and crime rates, but not so powerful and consistent a relationship as to exclude other factors in crime causation. This paper will first survey social-science literature on economic variables affecting law-violation rates. It will then present briefly some evidence and inference that social, cultural and political aspects of the lives of many of today's youths are major determinants of both their unemployment and their offenses.

INTRODUCTION

The simple theory that crime is a means of obtaining wealth or of expressing anger when legitimate economic pursuits fail has probably been propounded since ancient times, and has been tested statistically at least since the early nineteenth century (Vold, 1958: Chapter 9). Four distinct methodologies differentiate these studies, which can be categorized by the types of data that they employ, as: human ecology, social class, business cycle, and circumstances of the offender. This research was always handicapped by deficient information, especially on crime, and probably by failure to investigate adequately the qualifications that the simple theory requires to fit reality. Nevertheless, even a cursory review reveals that findings from each of these four types of investigations, while somewhat inconsistent and controversial, predominantly show that extreme poverty (in comparison to the rest of the community) is highly correlated with crime.

ECOLOGICAL STUDIES

A "social survey" movement spread from one city to another during the nineteenth and early twentieth centuries. Perhaps the most influential of its publications in the English-speaking world was Charles Booth's Life and Labor of the People of London, issued piecemeal from 1886 to 1903.

The movement's many similar studies illustrated, for a large number of metropolises, the concentration of both crime and poverty in the same neighborhoods. Somewhat more objective evidence was provided by Clifford Shaw and Henry D. McKay (1929, 1942). Their maps and tables showed how delinquency rates varied in Chicago's census tracts. For comparison they made similar maps and tables for such indices of poverty as average rent per residential unit, average number of occupants per room, and infant mortality rates. Thus these publications demonstrated, but did not measure, the extent to which delinquency was concentrated in areas with peak rates of poverty, disease, divorce and all other indices of what they called "social disorganization." Their 1942 book also reported similar studies that their work had inspired in other American cities, all of which had analogous findings.

For two decades following World War II, the analysis of census tract rates for delinquency and other variables--such as income, rent, ethnicity, housing, crowdedness, and every other item that the census tabulates by these tracts--was made more rigorous in several cities through multivariate statistical computations. Gordon's (1967) thorough review of this research, however, summarizes:

> All of these studies misused such ... procedures as partial correlation, multiple regression and factor analysis. In addition, these studies ... have been affected by serious artifacts stemming from the accepted practice of using indexes with mixed cutting points, some of which are more sensitive to the tails of their distributions than others. When all of these errors are taken into account, it turns out that the association between delinquency and socioeconomic status is quite unambiguously very strong.

He adds an extremely astute message for policymakers:

It is the extremely low end of the SES range that is most relevant.

> This finding ... contains a warning concerning the conduct of antipoverty programs. It suggests that, in order to decrease delinquency, for example, it is necessary to reach the very bottom-most stratum in every census tract. Simply pumping money into low-income areas may result in helping needy people, but they may not be the ones chiefly responsible for the high social pathology indexes from which intervention against poverty now derives its main political justification. To the extent that programs fail to reach this lowest stratum--however successful they are at assisting the more accessible higher-stratum poor--they will fail

> to alleviate the more intractable and socially visible consequences of poverty. Certainly there is much to be said, on humanitarian grounds alone, for directing limited resources toward the people best able to take advantage of them. ... Nonetheless, there remains the possibility that the failure of programs to materially reduce delinquency and eliminate hard-core poverty will trigger political reactions that make it impossible to gain support for efforts that would benefit the very poorest. For these people's own misery to be used to legitimate help for someone else, and in a manner that diminishes their own chances of eventually receiving help themselves, would be the ultimate exploitation.

Delinquency, as a legal concept, refers only to offenses committed by juveniles. While defined somewhat diversely in our fifty states, it usually encompasses all acts by persons below a particular age--usually eighteen--that would be prosecutable as crimes if the perpetrators were older. It also includes acts for which only juveniles can be placed in state custody. These so-called juveniles status offenses are mainly truancy from home or school, and incorrigibility (defined as persistent or flagrant disobedience of parents, teachers or ther adult authorities). Adult crime, however, includes many offenses by youths, since the median age of arrest for major crimes (the FBI's "Index Offenses") was 19.2 during 1976 (a puzzling increase of about one year over the median in preceding years), and about one-third of the arrestees were between eighteen-and-twenty-five-years-old in every recent year.

There has been much less ecological research on the neighborhood correlates of adult crime rates than on delinquency. The major study was Schmid's (1960) factor analysis of a 38 x 38 correlation matrix of twenty crime indexes and eighteen economic, demographic and social variables from the 1950 census for ninety-three census tracts of Seattle. By far the highest correlations in the matrix were between the percentage of males unemployed and the rates of various specific offenses, notably .82 for drunkenness, .83 for fighting, .85 for other disorderly conduct, .82 for lewdness, .85 for petty larceny, .80 for theft from automobile, and .85 for highway and car robbery. Correlations of median income with the same offenses ranged from .48 for lewdness to .58 for theft from automobile. It should be noted that the location of arrests for drunkenness, disorderly conduct and lewdness often tells as much about neighborhood variations in police practices as about variations in citizen behavior.

Schmid's (1960) factor analysis identified eight clusters of intercorrelated variables. The first factor, with by far the highest loadings, he labeled "Low Social Cohesion--Low Family Status." It revealed strong correlation of social conditions characteristic of slum rooming house areas near business districts--low proportion of homes owner-occupied, high percentage of labor force unemployed, low education levels, low percentage of adults married, high proportion of females in the labor force and low status occupations--with such crimes as automobile theft, theft from automobiles and shoplifting. The second factor, which was labeled "Low Social Cohesion--Low Occupational Status," identified by high factor scores the poorest residential neighborhoods, contiguous to Skid Row and mostly occupied then by blacks and Orientals, but by low scores it also identified the better residential areas with mainly white collar occupations or higher blue collar jobs. The demographic components of this factor were low status occupations and low education levels, but a high proportion married, high fertility rates, few of the females in the labor force and high proportion of housing over thirty years old; it was linked to the same types of crime as Factor 1. This study's extremely high correlations of crime with unemployment and its two strongest factors emphasize the linkage of crime to the poorest of the poor neighborhoods, much as did the multivariate analysis of delinquency rates.

A different ecological research method divided cities into "social areas" by three composite indicators of census tract characteristics: Economic Status, determined by prestigious occupations and high levels of education; Family Status, shown by high fertility rates, low percentage of women working, and high percentage of single-family dwellings; Ethnic Status, ascribed to areas with a high percentage of native-born whites (Shevky and Bell, 1955). Applying this scheme to Lexington, Kentucky in 1960, Quinney (1964) found both crime and delinquency rates inversely related to economic and family status but positively related to ethnic status. Further analysis showed, however, that the ethnic status finding occurred because offense rates were highest for nonwhites living in areas occupied predominantly by whites and highest for whites in areas with the largest proportion of nonwhite residents. Furthermore, high family status prevented crime only in areas of low economic status.

A quite contrasting type of ecological analysis uses total cities or metropolitan areas as units, rather than census tracts within these communities. Schuessler and Slatin (1964) factor analyzed 1950 and 1960 crime and census variables for cities of over 100,000 population in the United States. In both periods the factor most associated with crimes against the person, which they first called "Social Frustration" but relabeled "Minority Relations," had major loadings from high percentage nonwhite, high housing crowdedness, and low percentage of young people in school. The factor most associated with property crime, which they labeled "Anomie," loaded high on only one census variable in 1960, percentage divorced, but in 1950 was also identified by low percentage of population engaged in manufacturing, low percentage of population in families, low median schooling of males over twenty-four-years-old, and low median monthly rent. Economic variables were clearly far from dominant in the conditions that this study linked with city crime rates.

Eberts and Schwirian (1968) hypothesized that crime would be evoked not by a particular low level of wealth or income in a city, but by the relative deprivation of some persons there as compared to the rest; essentially, they ascribed crime more to inequality than to poverty. Using data on 200 Standard Metropolitan Statistical Areas from the 1960 census and FBI figues on offenses known to the police, they found crime rates highest in metropolises with the greatest disparity between the proportion of the population with annual income over $10,000 and the proportion with income under $3,000. Thus crime rates were higher where there was a large upper class or a large lower class than where these extreme strata were nearly equal in size. This finding was clearest in the biggest metropolitan areas, in those with a high percentage of nonwhites, and in the South; outside the South, crime rates were especially linked to a high proportion in the upper class rather than to a more balanced income distribution or the largest proportion in the poorest class.

Eberts and Schwirian also classified metropolitan areas by the percentages of their white and nonwhite populations having white-collar jobs, compared to national percentages for each of these racial groups. Crime rates were largest in metropolitan areas where these percentages were highest for whites and lowest for nonwhites; it was the disparity in availability of white collar employment more than the actual proportion of the white or nonwhite proportion receiving it that was most related to offense rates. This finding applied to both large and small metropolises, and to the non-South as well as the South, although it was most pronounced in areas with a low percentage of the population nonwhite. Thus both of their analyses confirmed that inequality is the economic variable most correlated with high crime rates. It would be interesting if such analyses were done separately for crimes by youth, and for different types of offenses.

A still different type of ecological analysis uses states within our nation as its units, and its findings have been of major interest primarily for homicide. Many criminology textbooks have for decades suggested that regional cultures are major determinants of crime rates in the United States, pointing out that most offense rates of states increased as one moved from the Northeastern to the Far Western states, but that the Southeastern states combined by far the highest homicide and assault rates in the nation with low rates of crimes against property. Hackney (1969) and Gastil (1971) extended the analysis of Southern homicide rates. They emphasized (1) the slavery and absence of industry in Southern history, (2) the traditions of dueling and vigilantism, and (3) statistics that showed higher correlations between state homicide rates and whether a state had been in the Confederacy during the Civil War than the zero-order or multiple correlations of the homicide rates with median income, education or a host of other economic and social variables.

Loftin and Hill (1974), however, present impressive evidence that it is not a state's Southernness but its degree of extreme poverty or of poverty-conducive conditions that is most predictive of its homicide rate. Thus the zero-order correlation of state homicide rates in 1960 was -.43 with median income but .67 with the percentage of a state's families having annual income under $1,000, .77 with the percentage of the population illiterate, .82 with the percentage of the population over twenty-four-years-old with less than five years of education, .83 with the percentage of its inductees failing the Armed Forces Mental Test, .85 with its infant mortality rate, .88 with the percentage of its children living with only one parent and .93 with a "Structural Poverty Index" based on all of the foregoing except median income. The correlation of homicide rates was .80 with a state's being in the Confederacy during the Civil War and .87 with Gastil's (1971) index of the Southernness of each state's population (an index for each state, which for non-Southern states considers how many migrants it received from the South and other evidence of probable Southern cultural influence). Incidentally, state homicide rates correlated .85 with percentage of the state population nonwhite, and the Structural Poverty Index correlated .84 with Southernness. In two multiple correlations of state homicide rates with diverse independent variables, one with a dummy variable for Confederacy and one with the Southernness Index, Structural Poverty had by far the highest Beta Weights.

Thus, whether the units of ecological analysis are neighborhoods, cities or states, both zero-order and multiple correlations between rates of delinquency or crime and indices of extreme poverty are quite high. Nevertheless, persons who are skeptical that poverty is a primary cause of crime point to rich people who violate the law and poor people who do not. Specifically, critics of ecological studies point to law-abiding individuals in high offense-rate neighborhoods, and to some neighborhoods with much poverty but low offense rates. Such exceptions are among the reasons why statistical correlation coefficients are less than 1.0, but they may also be clues to factors that counteract poverty in crime causation.

Quinney's (1964) Lexington study, already cited, was one of many to find that cohesive family bonds distinguish the nonoffenders in high delinquency areas. Similar conclusions were reached by the Gluecks (1950) in their landmark comparison of delinquents and nondelinquents from the same Boston neighborhoods, and also by more recent studies. Hirschi (1969) provides persuasive data on family and nondelinquent peer friendship bonds acting as "controls" against temptations to delinquency to which, he suggests, most of us would otherwise succumb. Sociologists have also repeatedly demonstrated by illustration--not by adequate statistics--that when low offense rates characterize very poor neighborhoods or towns, the residents generally are of the same ethnicity, have cohesive extended families, and participate actively in local religious or other organizations. Examples in the United States included Chinatowns and Japanese-American neighborhoods that formerly were both extremely poor and relatively free of crime. More recent examples are sections of African cities settled by a single tribe as compared with mixed tribal neighborhoods (Clinard and Abbott, 1973, 1976; Glaser, 1978: 224-25). Yet, interethnic mixture is inevitable in modern cities; although the weakening of ethnic institutions and a resulting increase in crime are often its temporary consequences, its long run effects probably are to reduce both inequality and crime. However, the most influential assertions that economic conditions cause crime focus on conflict among groups with opposing interests in the means of production, but these assertions have been a source of discord in the academic community.

SOCIO-ECONOMIC CLASS AND YOUTH CRIME

Karl Marx wrote little on crime, but designated all private property as "theft." He was unsympathetic to criminals, whom he called "scum" when warning his followers against alliances with them (Hirst, 1975). However, early Marxist criminologists, notably Holland's Willem Bonger (1905/1969), ascribed crime to poverty and blamed poverty on capitalism. This theme is widely asserted in Britain and the United States by self-styled "radical" or "critical" criminologists. They proclaim that we could "rid society of thievery by abolishing the precondition for theft--namely private property"

(Taylor et al., 1973:174), ignoring the theft of public property in all societies, and that the most serious crimes everywhere are against persons, including theft of their legal rights.

The ecological data already cited, and statistics on the income or occupation of arrestees or convicts and their parents, provide ample and consistent evidence for those who claim that inequality of socio-economic status causes crime. Critics of all political persuasions, however, question the adequacy of official statistics that link crime to the lower classes on two major grounds. The first is that crimes of the upper classes, such as monopolistic practices, misrepresentations in selling, tax evasion and other so-called white-collar offenses are not greatly prosecuted, although their dollar costs are always estimated as totalling many times that of ordinary property crimes, such as theft, burglary and robbery. The second is that ordinary offenses are also committed by the middle and upper classes, but police and courts enforce the law disproportionately against low-status offenders. A third, albeit less major, criticism by some criminologists, is that all violations of human rights are criminal, and therefore, any act fostering poverty, racism, sexism or war is a crime (Schwendingers, 1970). There are good methodological arguments for defining "crime" more narrowly, yet in its broadest legal sense, as any act for which a court may lawfully impose punishment; but criminologists should still be concerned with how economic elites and other pressure groups tend to determine the content of laws that specify what courts may punish (Glaser, 1978: Ch.2).

Ostensibly compelling evidence that delinquency rates are not related to socio-economic class was provided by questionnaires given to junior high and high school students, who were asked to check which of a list of offenses they had committed. Usually these forms were anonymous--the students' names were not required, but later research shows that requesting names makes little difference in the responses. The students were also asked to indicate the occupations of their parents, and the surprising finding was that students from every social class grouping of parental occupations reported delinquency at about the same rates (Nye et al., 1958; Dentler and Monroe, 1961; Akers, 1964; Erickson and Empey, 1965; Hirschi, 1969). Diverse checks, including use of a lie detector, have shown these questionnaire admissions of law-breaking to be quite valid (see Clark and Tifft, 1966).

There are two major methodological defects in the above procedures. In the first place, all these studies either were done at only one school or pooled the responses from different schools. It is possible that students within any school develop similar standards of conduct regardless of the occupations of their parents--the school is a subcultural unit--but that schools from neighborhoods of very contrasting economic status differ in the delinquency of their juvenile subcultures. It is also possible that the classification of parental occupations, usually by census categories, is misleading as an index of socio-economic class when different types of neighborhoods are pooled. For example, most business proprietors or salespersons living in a slum may have much less income than persons with the same occupation who live in a wealthy suburb; the slum residents may average as little as $10,000 per year and the suburbanites over $100,000.

The above hypotheses seemed to be validated by Clark and Wenninger (1962), who administered questionnaires in a poor rural school district, an inner city metropolitan ghetto, an extremely wealthy suburb, and a small industrial city. There was no marked relationship within any of these districts between father's occupation and admitted delinquency, but on the whole, offense rates were lowest in the rural area and highest in the slum ghetto. The slum juveniles reported more theft, violence, truancy from school, deliberate disruption of school activities and vandalism than did youngsters elsewhere. The suburban students reported more drinking, gambling and use of pornographic literature, offenses probably reflecting their affluence, as well as a fair amount of truancy. Hardt (1968) reported similar findings in comparison of lower and middle class neighborhoods of another metropolitan area. It should be stressed, however, that the contrasts between neighborhood admitted-delinquency rates reported in these studies were not nearly as great as those indicated by police records. Hardt procured arrest records for the areas in which he gave questionnaires and he also asked the students whether they had been ticketed or arrested by the police. The results showed that police are much more inclined to arrest in poor than in middle class areas. Several case studies of middle and upper class delinquency (e.g., Chambliss, 1973) also indicate the ease with which some affluent youth can "get away with" crime.

A second source of error in these studies is that the most delinquent students are likely to be truants, hence absent when the questionnaires are distributed. This biases the research to underreport delinquency. Such an error was demonstrated through a study in London, by the Canadian sociologist Lynn McDonald (1969), who found neighborhood differences in admitted delinquency analagous to those reported by Clark and Wenninger and by Hardt. When she traced and contacted most of the students who were absent when she administered her questionnaires to the schools, she found that they had higher crime rates than those who were present, and that absenteeism was highest in the low status areas.

An additional defect not inherent in the above type of methodology characterized most of the early studies. In order to have offenses that scaled statistically, so that they could ask about many offenses but assign a single delinquency score to each student, the researchers included inquiries on very petty infractions, such as speeding, and deliberately disobeying parents. Some also failed to ask about the frequency of offenses. Virtually all studies that provide separate data on a wide range of offenses and by frequency, even within school districts, find that children of low status parents differ from those of higher status in reporting that they more often used violence and stole items of appreciable value (see also, Gold, 1970).

These admitted offense questionnaires have been used almost exclusively with students. In their one major application to adults (Wallerstein and Wyle, 1947), an amazing volume of serious offenses were admitted, but the study's only statement on the relationship of crime rates to status was that: "The mean number of offenses committed in adult life (over age 16) for men, classified according to occupation, ranged from 8.2 for ministers to 20.2 for laborers, with a mean of 18 for all men."

During 1973 the U.S. Bureau of the Census conducted a national sample survey for the Justice Department in which persons were asked if they had suffered any of a list of major crimes in the previous year, in addition to questions on their social and economic characteristics. Those who reported the lowest annual incomes most often reported victimization from assaults and robberies from the person, but the poorest and the wealthiest were highest in household burglaries (Law Enforcement Assistance Administration, 1975:18, 22). Since all of these crimes except burglary of affluent homes are usually ascribed to youths in the area and since a neighborhood's residents tend to be of similar economic status, one can infer from the victim's reports that such crimes are committed most often by the poorest youths. The relationships of victimization rates to income were similar for blacks and whites.

In summary, the traditional conclusion that the lowest socio-economic classes have delinquency and crime rates greater than those of the upper classes is predominantly supported by questionnaire studies, but less strongly than by arrest rates. Therefore, it is erroneous to assert that all socio-economic classes have the same law-violation rates; most types of ordinary crimes are demonstrably perpetrated more often by poor than by affluent youths. Yet so-called white-collar offenses certainly are committed most often by adults in high-status occupations, since they have the most opportunity to engage in such crimes.

CRIME AND THE BUSINESS CYCLE

Efforts to relate fluctuations in the frequency of crime to changes in various economic indicators, from unemployment rates to the price of rye, were undertaken during most of the nineteenth century in Europe, and were extended to the United States during the twentieth century. The results were highly inconsistent and controversial. After surveying these undertakings, Vold (1958: 164-81) concludes that: "...assumptions involving either positive or negative relationships with economic conditions may be supported with some show of statistical significance. The obvious inference is that the general relations of economic conditions and criminality are so indefinite that no clear or definite conclusion can be drawn."

Despite the pessimism that this earlier research evoked, studies during the past twenty years have quite consistently related variations in crime rates to shifts in the extent of unemployment, especially when they also considered interacting variables. Glaser and Rice (1959), controlling only for age, found marked positive correlations between arrest rates of males twenty-one-year-old or older in Boston, Cincinnati and Chicago during 1930-1956 and U.S. national Age-Specific Male Labor Force Unemployment rates, but negative correlations for persons under twenty-one. The positive correlations of crime with unemployment for men twenty-one and over were especially marked and consistent for theft in all three cities, but only in Boston and Cincinnati for crimes against persons and for misdemeanors: Chicago had a variable pattern on these two types of offenses. The inverse correlation of arrest rates with unemployment for males under twenty-one was consistent in all three cities only for crimes against persons and for misdemeanors, but not for the positive correlations for men twenty-one and over.

The Glaser-Rice study focused on these three cities because they were the only places for which we could find age-specific arrest rates compiled in a uniform manner for a long range of years. The FBI's age-specific national arrest totals had a highly variable population base, for many years came only from cities that comprised under half the United States population, and reflect drastic changes in methods of collecting arrest information, especially after 1952; thus we had no way of knowing for any long range of years the population base from which to convert the FBI arrest data to rates. Nevertheless, we calculated each age group's proportion of total arrests from the FBI figures for 1932-1950 and correlated these proportions with the percentages of U.S. Labor Force Unemployed in these years. The correlations were consistently positive for ages twenty-one through thirty-four for property crimes, for crimes against persons, and for misdemeanors; they were consistently negative for arrestees eighteen and under for property crimes and for crimes against persons, but they were also negative for all three categories of crimes for persons thirty-five and over, and were inconsistent for other age and offense groups. It is possible that the negative correlations for those thirty-five and over are artifacts of using proportions of total arrests instead of rates for each age group, since this procedure makes figures for the various age categories interdependent. Incidentally, similar results were obtained using total and age-specific unemployment rates.

In planning this research I wished to control for age because I presumed that unemployment would most strongly affect crime rates for men over twenty-one, most of whom are in the labor force. I hypothesized that juvenile offenses, conversely, might increase in periods of full employment, because then more mothers enter the labor force and there is increased use of commercial recreation that separates parents from children. The finding that positive correlation with unemployment for men over twenty-one was strongest and most consistent for property crimes (since these are illegal substitutes for jobs), while negative correlations for juveniles were more marked and consistent for crimes against persons and for misdemeanors (which are mostly either violent or disorderly acts), seemed to support the theory underlying these hypotheses.

Gibbs (1966), however, offers an alternative explanation for our findings. He interprets our data as support for his theory of status integration, with which he has analyzed various forms of deviant conduct and usually has procured positive but also debatable results (see Li, 1971). Essentially, the theory asserts that conduct will be most deviant under conditions that are most unusual for persons in a given status, and unemployment is least unusual in our society for men over twenty-one and under retirement age. Incidentally, inspection of the raw data indicated that very high juvenile arrest rates accompanied full employment of adults only during the World War II and immediate postwar years, when numerous adult males were away in the armed forces and many families were relocated far from kin, leaving adolescents especially on their own.

More recent research relating crime to unemployment has been done by economists. They used much more sophisticated statistical methods than were previously applied to this task. The major study is that of Belton Fleisher (1966), who limited himself to offenses by persons under twenty-four-years-old. He used multiple-regression analysis, adding many variables to the unemployment and arrest data, including: (1) the number of men in the armed forces, to take into account the effects of war mobilization on family life; (2) what he calls "taste" variables, namely, the proportion of women over fourteen-years-old who are separated or divorced, the proportion of residences that are owner-occupied, and the median years of schooling of the adult population; (3) dummy variables for region and for years in which there were changes in the FBI's method of collecting age-specific arrest data; (4) additional variables for social conditions, notably percentage nonwhites and geographic mobility of the population. He applies these variables to relating unemployment and crime either longitudinally over time or cross-sectionally at one time, to 101 U.S. cities and seventy-four Chicago census tracts plus forty-five Chicago suburbs, and also presents some British data. His time-series analyses show marked positive correlations, especially for those over seventeen, but a negative correlation for those under seventeen in England and Wales. His cross-sectional analysis, which is really an ecological study, finds youth arrests in high arrest rate areas more a function of mean income than of unemployment rate. He estimates that in these areas "a ten per cent rise in income might well result in a twenty per cent decline in delinquency." Although one dare not extrapolate that a fifty percent increase in income would eliminate delinquency, there is much to be learned from his data and his cogent commentary.

Phillips, Votey and Maxwell (1972a, 1972b) extend Fleisher's analysis somewhat by: (1) considering as separate independent variables related to unemployment (a) the race-specific proportion of an age group in the labor force (which has declined for youth as more go to college, but also as more give up searching when long unable to get jobs), (b) race-specific rates of unemployment, and (c) the fraction of eighteen- and nineteen-year-old males of each race in the noninstitutionalized population (which changes mainly from shifts in the size of our armed forces); (2) considering as separate dependent variables the four most frequent property crimes--larceny, burglary, robbery and auto theft--

but only for eighteen-and nineteen-year-olds. Because of collinearity, the independent variables predicted crime rates better if racial categories were combined and all the population was categorized by either of two trichotomies: (1) working, nonworking (either unemployed or not in the labor force) and other; (2) in the labor force, not in the labor force and other. Variations in the values for each of these two trichotomies predicted offense rates equally well. Age-specific offense rates were estimated for youth by dividing the proportion of all arrests in the eighteen-to-nineteen-year-old age category by the ratio of clearances by arrest to total reported offenses; this assumes that there is the same age distribution in nonarrested as in arrested offenders. These procedures permitted remarkably accurate estimation of youth offense rates from the employment data. They conclude that the increases in youth crime rates during the 1960s did not indicate that youths were becoming more criminal but rather, that the economic difficulties conducive to their committing crimes were increasing (see also, Votey and Phillips, 1974). Several other multivariate regressions of crime with unemployment have been published (e.g., Ehrlich, 1973; Greenberg, 1978), but none, I believe, that focus on youth crime.

Discussion of crime and the business cycle should not be concluded without considering some rather remarkable fluctuations in the offense rates of metropolitan youths that occurred in the late 1960s and early 1970s which, as far as I know, have not been analyzed by economists. Nationally, homicide rates increased from 9.6 to 18.4 per 100,000 in cities of over a million population between 1965-1970, and reached 24.6 in 1975, but declined slightly thereafter. This was mainly a metropolitan phenomenon; the national homicide rate changed from 5.5 in 1965 to 8.3 in 1970 to 10.2 in 1975, and all city categories of less than a quarter-million had increases less pronounced than the surge in national totals. The rise in robbery rates reported to the FBI was even more pronounced from 1965 to 1970 in cities of over a million, increasing from 221 per 1000,000 in 1965 to 778 in 1970, then only to 879 in 1975, and declining thereafter; the national robbery rate went from 72 in 1965 to 172 in 1970 to 218 in 1975.

There are no published national tabulations to indicate the contribution of different age groups in large cities to such increases in these two types of violent crime. Special studies for Chicago, however, probably indicate developments in most metropolises of the United States in this period, for the social and cultural groupings and sentiments were similar in many cities. Between 1965 and 1970 the rate of homicides noted by the Chicago police more than doubled, but homicide arrests of black males fifteen-to twenty-four-years-old almost tripled and homicide victimization rates for this population category more than tripled. During this period the percentage of homicides that occurred in the course of robberies rose from eight to eighteen in Chicago but the number robbery killings ascribed to offenders fifteen-to twenty-four-years-old increased more than sevenfold, with both arrestees and victims in these offenses disproportionately black. There was also a 791% increase in the number of homicides ascribed to groups of black males, aged fifteen to twenty-four, as compared with 136% increase in the homicides alleged to have been done by lone offenders in this population category. Finally, the proportion of homicides ascribed to black males aged fifteen to twenty-four involving the use of firearms increased 444% between 1965 and 1970, compared to 69% for their homicides by all other means (Block and Zimring, 1973). These trends continued through 1973, but were less pronounced after 1970 (Block, 1975).

The distinctive feature of the early 1960s in the history of the United States was the progress of the civil rights movement. This greatly increased expectations of increased equality of opportunities among black youths. The lag in realization of these hopes, especially in the metropolitan ghettos, is alleged to have been the main factor in precipitating a series of riots in these locales, beginning with the Watts riot in Los Angeles in 1965. These disturbances intensified following the assassinations of Martin Luther King and Robert F. Kennedy in 1968, but were largely terminated in the early 1970s.

From 1965 on, the mass media vividly portrayed this violence, bringing it pictorially into everyone's living room. This furthered both black youth violence and white backlash. More than ever before, the nation became an armed camp, with manufacture and importation of handguns rising from one million in 1965 to over three million in 1969, then declining to about two million annually by the mid-1970s (Newton and Zimring, 1969:174; U.S. Department of Commerce, 1976:156).

To claim a full understanding of this upsurge in violent crime would be presumptuous, but it seems reasonable to infer that it was in large part a consequence of a growing sense of relative deprivation among ghetto youths. Their frustration at the inaccessibility of legitimate ways to realize the "American dream" that Dr. King had portrayed evoked an anger that usually was directed at the most convenient targets, other blacks. But the wave of ghetto riots were followed by some reduction of both perceived and actual inequality--social, political, and economic--sufficient to facilitate further progress by nonviolent means. Although social scientists debate how much this progress has slowed down in the 1970s, it does not appear to have stopped; black youth increasingly have seen prospects of improving their lot by education, and have gained much white collar employment, despite the fact that an academic degree may be less of a guarantee of a good job than it was a few years ago (Hauser and Featherman, 1976; Taussig and Danziger, 1976; Farley, 1977). It would be interesting to determine whether there was decreased predictability of black youth crime rates from employment data during the 1970s, and whether youth in the Latino barrios of our metropolitan areas are beginning an upsurge similar to that of the black youth a decade earlier, for somewhat comparable reasons.

EMPLOYMENT STATUS OF OFFENDERS AT THE TIME OF THEIR CRIMES

A fourth method of investigating the economic factor in law violation has been to try to determine the rate and quality of employment of offenders at the time they commit their crimes. Such inquiries are most easily pursued when research subjects are under some type of government control. Methods used include (1) interviewing convicts in prison about their employment when they committed their crimes, (2) correlating the employment information routinely collected on probationers and parolees while they are under supervision, with their subsequent recidivism rate, and (3) interviewing them regarding their employment when they make their required regular visits to the supervision office.

All the above procedures were used in Glaser's (1964) study of federal prisoners and parolees. The parolee interviews were replicated and extended by Pownall (1969). Only a quarter of the federal prisoners were found to have been employed during 75% or more of their last two years in the community, 38% were employed 25% to 74% of this time, 27% worked less than a quarter of this period and 6% not at all, while 4% were students throughout these last two years out. Postrelease employment and earning rates were inversely related to recidivism rates on parole. Also, in almost all probation and parole prediction studies testing this variable, prior employment is inversely related to recidivism.

A 1974 Bureau of the Census survey of inmates in state prisons, conducted for the Department of Justice, concluded from responses of the prisoners that almost half had worked for twenty-eight weeks or less on their last job, 42% had annual incomes near or below the $2,492 then designated by the government as the poverty level, and their employment was disproportionately in unskilled labor, operative and service jobs (U.S. Department of Justice, 1976:25). A Rand Corporation study probed in depth the official and actual crime and work careers of forty-nine California prisoners convicted of robbery who had at least one prior prison term. The study found that only about half had depended on a regular job as their usual source of income, that 10% never were interested in a regular job, and that only about 15% claimed that loss of a job had contributed to their committing their last offense. Most of their jobs were of poor quality, but those with the best employment records were the most intermittent in their offenses (Petersilia et al., 1977). A Rand survey that contacted about 1400 inmates who offered a fairly representative sample of California prisoners, found from a factor analysis of their responses to probings on the motivation of their crimes, that about equal weight was given by them to economic duress (e.g., losing a job, heavy debts) and "high times" (e.g., to get money for drugs or alcohol, excitement and kicks). Those with the most stable employment had the least involvement in crime (Stambul and Peterson, 1977).

That destitution evokes crime is suggested also by experiments in California and Maryland which demonstrated that recidivism of parolees is reduced if they are paid modest sums--$60 to $80 per week for up to 12 or 13 weeks--when unemployed (Reinarman and Miller, 1975; U.S. Department of Labor, 1977). These programs were justified, in part, by the fact that eligibility for unemployment insurance requires a minimum amount of insurance-covered employment during the preceding 12 to 18 months (amount and duration depend on state laws), but a person confined in this period (e.g., as an inmate of a prison or a mental hospital) cannot have such employment. I understand that repetitions of these experiments in Georgia and Texas did not result in recidivism reduction, but reports on these studies are not yet available. However, California in 1977 enacted S.B.244 which provides credit for work in prison toward payments when unemployed on parole.

Studies of offenders' circumstances, like the other three types of inquiry into economics and crime reviewed here, leave the impression that extreme failure at legitimate employment is highly correlated with serious law violations. Yet this correlation probably is imperfect not only because of measurement difficulties, but (1) because of variations in the way people assess their economic deprivation, and (2) because of other social and cultural influences inhibiting or fostering involvement in crime. Some of the latter influences may affect not only crime, but also prospects of employment.

SOCIOCULTURAL AND POLITICAL FACTORS IN TODAY'S YOUTH CRIME

Any study of youth unemployment and youth crime should analyze the history of these problems. A view of the past yields somewhat different conclusions for different types of offense (elaborated in Glaser, 1978), but suggests that for most youth crimes in the United States today three developments are especially influential: (1) social separation of youths from adults, (2) differentiation of students in elementary and secondary school experience, and (3) futile criminalization of some types of drug use. These trends, it can be argued, not only supplement unemployment in causing youth crimes but also cause much youth unemployability.

Segregation of Youth

Formerly, the activities of adults and children were much less separate than they have now become. The rapid increase in ownership of home appliances, automatic central heating, no-iron clothing and pre-processed food has steadily diminished the time required for household chores and the extent to which they are shared by children and parents. The replacement of small family businesses by corporate enterprises has eliminated what once were intensely collective interests of the parents and all their offspring old enough to help; family businesses have shrunk from the major form of employment to a relatively small role in our economy, especially as the proportion of the population engaged in farming has declined.

The time that youth spend in school has grown continuously. The median level of education of our population over twenty-four-years-old rose from 8.6 years in 1940 to 12.1 in 1970. Contrastingly, until the beginning of the twentieth century a majority did not even enter high school and until about 1950 more entrants dropped out than graduated. The academic year has been lengthened by more than a third during the past half-century. The amount of time that students spend away from home per school day and on weekends has also grown because of burgeoning extracurricular activities in school and commercial recreational activities catering primarily to youth. These developments, plus more employment of both parents away from home, have steadily expanded the proportion of their waking hours in which youth are in close personal contact only with persons of about their own age (Gillis, 1974; U.S. President's Science Advisory Panel on Youth, 1974; Glaser, 1978:Chapter 8).

A basic law of sociology and anthropology is that social separation produces cultural differentiation. Because of their increased separation, today's youth probably diverge from their parents in tastes and values more than did youth of any former era. This contrast between the generations is readily evident in their music and dancing preferences, and it was demonstrated statistically by the 1977 Gallup Poll findings that most Americans eighteen to thirty years old had smoked marijuana, but only 5% of those over fifty had tried it. Such generational differences probably can be reduced only by increased collaboration of juveniles with adults in common interests and activities. Unless the age segregation in our society diminishes, not only will the generations disagree on marijuana, but many youths will be especially deficient in qualifications for successful employment in today's industrialized and urbanized society. These handicaps, however, do not divide the generations as much as they differentiate the youth population, and they result from conditions in our schools.

Differentiation of Students

Because the years spent in school and the schooldays per year have grown while time spent by youths with their parents has diminished, the school's potential influence on the younger generation probably has increased. But those who become seriously retarded in basic learning skills in the early grades find their classes in subsequent years especially frustrating, humiliating and boring. All youths seem to seek respect from peers, and those who cannot get it by academic work search for it in alternative types of activities, including delinquency. More than ever before, research finds that dislike of school, poor grades, and classroom misconduct are predictive of later law violations, both when offenses are measured by infractions that youths admit on questionnaires or by their arrest records (Hirschi, 1969; Empey and Lubeck, 1971; Polk and Schafer, 1972; Frease, 1973). Multivariate analysis indicates that a poor school record has become more closely related to delinquency than belonging to a lower socio-economic class or a minority group (Polk and Halferty, 1966; Jensen, 1976). When juveniles acquire delinquency records while in school, however, their rate of further offenses diminishes if they drop out, and declines even more if they also marry, get jobs, or both; thus delinquency becomes less persistent if they leave the isolated social and cultural world of adolescents maladjusted to the student role and acquire legitimate roles in the adult world (Elliott and Voss, 1974).

Contrastingly, students who like school and are fairly successful in meeting its academic requirements are thereby prepared for legitimate adult roles. They usually are less separated and alienated from adults than students doing poorly in school, and they are much less likely to acquire a criminal record. Engaging in extracurricular activities is also inversely correlated with law violation (Hirschi, 1969), and such activities other than athletics are especially associated with later mobility in adult occupations (Spady, 1970; Otto, 1976).

It is probable that both classroom and many extracurricular groups prepare youths not just with substantive knowledge needed for adult occupations, but with a complex of lifestyle and communication habits needed for successful employment in modern large-scale formal organizations of business and government. Restriction of their social experience almost exclusively to informal adolescent groups may well be a major factor in the failure of many delinquent youth to meet the requirements of jobs provided for them (Loeb, 1973; Glaser, 1978;178-81). This, of course, is in addition to the stigma of a criminal record and, in many cases, to disabling appetites.

Drugs and Crime

Since ancient times various substances have been consumed by humans in order to alter their moods. Alcohol has probably always been the drug most widely used for this purpose, but opiates have a long history, as do marijuana and a derivative of the same plant, hashish. Cocaine and amphetamines also supplemented coffee and tea as stimulants in many times and places. Today 10% to 20% of the adult population in many communities take tranquilizers and sedatives under very liberal medical prescriptions or without this legitimation, although most of these commonly used substances are clearly more disabling than marijuana and some other legally prohibited mood-altering substances. Which one of these chemicals becomes legitimated and which outlawed has not been a function of the biological or psychological dangers inherent in their use, but of the political tactics of various interest and status groups (Goode, 1972; Glaser, 1978:Chapters 2 and 10).

The history of all of our drug prohibition legislation seems to be one of ineffectiveness, largely because the participants in drug use do not consider themselves victimized and therefore do not complain to the police. Consequently, only a small percentage of users and sellers are caught. When the substances are highly addictive, users have a very inelastic demand for them, making their sale so profitable that whenever law enforcement cuts off one source, others expand and new supply channels soon open. Also, when scarcities develop, some drugs are substituted for others. If the substances not only are highly addictive but their cost becomes more than most users can earn legitimately, they resort to crime to pay for drugs. Then police actions that make the supply short and the price high increase the amount of property crime and prostitution committed by addicts (Fuji, 1975: Votey and Phillips, 1976).

In addition, when prohibited substances are widely used, even by persons of influential social status, as alcohol was during our national Prohibition Era and marijuana increasingly has been in the past decade, enforcement of laws against them becomes glaringly haphazard. This development alienates enough of the population to nurture a gradually successful movement for regulation rather than prohibition of the substance, with responsibility for combatting injurious use transferred from the police to public health and education agencies. This has happened with alcohol, may be on its way with marijuana, and has been initiated with opiates through methadone maintenance programs. All such decriminalization reduced crime and other social costs from use of these substances, and probably diminished employment impairment as well. Unless this shift from prohibition to regulation accelerates, the high cost of youthful drug abuse will undoubtedly continue to be a major source of both drug and property crimes by youths, as well as an impediment of efforts to reduce their unemployment rates (these themes are elaborated and documented in Glaser, 1978:Chaper 10).

CONCLUSIONS

To combat youth crime is largely futile unless an effort is also made to assure legitimate employment for youths. To deal effectively with both youth crime and youth unemployment in the United States today, however, major social, cultural and political developments must be taken into account. Perhaps the most relevant and least recognized of these developments are the separation of youth social worlds from those of adults, the differentiation of youths in school adjustment, and the futile criminalization of substance abuse.

The practical implication is that youth crime reduction in the United States today requires not only full employment, but imaginative experiments, recognizing that each innovation probably will be effective for only a segment of the total offense-prone population. The many possibilities include, for example: subsidizing part-time employment of youngsters in junior high and high schools conditional on their progress in part- or full-time schooling, placing such youth individually or in very small numbers at work in a large variety of adult workplaces, treating small groups of students of mixed age and achievement as collaborative teams competing not as individuals but for rewarded increase in the team's average scholastic and conduct attainments, involving youth in formal management committees of mixed-age composition for matters that affect their daily lives (e.g., managing their recreational facilities, planning their cafeteria menus), changing youth corrections establishments from large storage institutions to small places with well-mixed staff and inmates plus much rewarded hard work, making abuse of psychoactive drugs of all types primarily a public health system rather than a criminal justice concern, decentralizing police and courts to get them closer to their clientele and oriented more to involving than to fighting our younger generation. All such endeavors require analytic rather than the customary global evaluations; we need to learn what works for whom, under what circumstances and above all why or why not, rather than assessing each policy only on whether or not it is a panacea (since none is, and all are easily rendered ineffective or even counterproductive by poor personnel in key positions).

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RACIAL DIFFERENTIALS IN MALE YOUTH UNEMPLOYMENT

By: Paul Osterman

ABSTRACT

This paper seeks to understand the source of racial unemployment differentials for young men. The approach is to estimate a model of youth unemployment separately for black and white youth and to compare the results for the two groups. The model consists of an equation for the duration of a completed spell of unemployment and equations estimating the probability of quits and layoffs. The results indicate significant racial differences in unemployment duration which persist even after controlling for various personal characterictics and labor market demand. On the other hand, the probability of a layoff is not much higher for blacks than whites and blacks are found more prone to quit into unemployment.

The final section of the paper examines the consequences of unemployment and finds that for whites the experience of unemployment seems to have few long term effects. However, for blacks high unemployment has long-term adverse consequences and low unemployment seems to have long-term benefits.

INTRODUCTION

The remarkably high unemployment rates experienced by black youth are probably the most serious blot on the recent economic record, and the recent reduction in overall unemployment has not appreciably eased the plight of young blacks.

To a certain extent the high unemployment rate experienced by black youth is due to causes common to all young people, the hiring practices of stable employers and the restlessness of youth, and will disappear with age.[1] The outstanding question is why the differential is so large between the experience of the two groups. This differential is the topic of this paper.

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[1] In 1976 the unemployment rate for Black men was 34% for 18-19 year olds, 20.7% for 20-24 year olds and 11% for 25-34 year olds. The comparable figures for whites were 15.5%, 10.9%, and 5.6%. Although these are cross-sectional data the pattern is also found in longitudinal samples and persists after controls for education and years in the labor force. In part this pattern results from a change in the behavior of youth--quits decline with age as do exits from the labor force--and in part from the reluctance of stable employers to hire teenagers. See Osterman (1978) and Lester (1954).

There are important mysteries associated with this differential. It is not enough simply to assert that black youth unemployment stands in a relatively fixed ratio to white unemployment and that therefore the high recent rates experienced by black youth are not unexpected. The fact is that the experience of black relative to white teenagers has been worsening. Particularly for males, in the mid-sixties a shift seems to have occurred and the relative position of blacks deteriorated.[2] Why this occurred is unclear. Some have suggested that labor supply shifts are the culprit. For example, a variable measuring the ratio of youth to adults in the labor force tends to be significant in time series regressions for black unemployment but not for whites. However, in the absence of a convincing story about demand it is not clear why a surplus of young blacks should increase their unemployment relative to whites instead of doing damage to both. Such a demand-side story would presumably emphasize discrimination, but here the mystery deepens. During the same period in which the unemployment situation of young blacks seems to have deteriorated, their earnings relative to whites improved. There is convincing evidence from a number of sources that rates of return in earnings functions have been roughly (though not entirely) equalized across races. Even in the absence of equalization the trend seems definitely positive. It is difficult to reconcile this "new labor market" with respect to earnings with the unemployment experience.

In addition to supply and demand explanations there are also some possible structural stories. One of these is the minimum wage, but I do not find it convincing. Even granted a disemployment effect, recent evidence does not suggest that the ratio of black to white unemployment has deteriorated because of minimum wage increases. Another possible explanation is suburbanization of employment. More so than adults, youth tend to work near home and if youth-intensive jobs have moved out of reach then even in the absence of discrimination black youth could be saturating the inner city job market. This seems possible, but it must be kept in mind that suburbanization is a trend which predates the mid-sixties and that youth-intensive jobs (service and trade employment) have not suburbanized as rapidly as manufacturing.

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[2] Between 1950 and 1959 the ratio of black to white unemployment for 18-19 year old males was 1.48. Between 1960 and 1965 the ratio was 1.75 and from 1966 to 1976 the ratio was 2.16.

This paper will address a considerably more limited set of questions than those posed above. Operating in the context of the "new labor market" findings and using the viewpoint and kind of tools generally associated with that analysis we will examine whether differences in background characteristics and tastes can explain the cross-sectional differences in the unemployment experiences of black and white youth. This investigation is important because if background characteristics can "explain away" the difference in black and white unemployment experiences to the same extent that they can earnings differentials, then this might imply less attention to the hiring practices of firms and more attention both to improving the endowments of black youth and to structural factors such as the suburbanization of employment opportunities. On the other hand, if it appears that black youth face different demand curves, then renewed efforts at equal employment opportunity programs and strengthening the placement capabilities of manpower programs and schools may seem important. To anticipate the answer, the results below show that after controlling for various factors the unemployment gap narrows but that an important fraction of this gap cannot be "explained away."

The next section of this paper will present and estimate a cross-sectional model of teenage unemployment, using microdata

Following that, in the final section, I will briefly discuss a topic to which surprisingly little attention has been given, the long-term consequences of teenage unemployment and how this varies by race.

A MODEL OF YOUTH UNEMPLOYMENT

The idea underlying this approach is to estimate a model of youth unemployment separately for blacks and whites and then to compare the structure of that model across the two groups. In this manner we can try to determine to what extent the different outcomes are due to different values of the parameters, i.e., differences in treatment of behavior, and how much they are due to differences in the values of the variables, i.e., differences in endowments.

Modern theories of unemployment distinguish between spells and duration. A group may suffer higher unemployment rates either because it has a disproportionate number of spells, though each spell may end quickly, or because unemployment lasts a very long time when it does occur. Important differences in interpretation arise, with long durations implying difficulty finding work while frequent spells are thought to imply either unstable behavior or high risk jobs. I will first analyze the determinants of duration and then turn to an analysis of spells.

Duration of Unemployment

The model employed here is drawn from the implications of various search theories (for example, Mortensen, 1970 and Lippman and McCall, 1976). An individual's duration of unemployment is determined by a two equation system, one equation determining the reservation or acceptance wage, the other determining the duration of a spell. This system can be summarized as:

(1) $R = R(K,D,C)$

(2) $D = D(U,R,K)$ D = Duration of spell

K = Skill Level

R = Reservation Wage

C = Cost of search and time spent unemployed

U = Distribution of job vacancies

with:

$\frac{\partial R}{\partial K} > 0 \qquad \frac{\partial R}{\partial D} < 0$

$\frac{\partial R}{\partial C} < 0 \qquad \frac{\partial D}{\partial U} > 0$

$\frac{\partial D}{\partial R} > 0 \qquad \frac{\partial D}{\partial K} < 0$

A straightforward approach to searching for racial differentials in duration is to estimate this system for blacks and whites and test for the differences across the equations. In particular, it would be interesting to know whether there are differences in the rate at which the reservation wage falls in response to duration, differences in the extent to which skill levels reduce duration, and differences in the impact of cost reducing factors, such as unemployment insurance, in increasing the reservation wage.

Estimates of this system will be provided below. However, there is a serious difficulty. Although this system provides a measure of the determinants of reservation wage, the measure of duration is seriously biased. Rather than being a measure of completed spells, which is what we want to measure with respect to our complete system of unemployment, the simultaneous system above provides a measure of spells in progress. As has been shown (Marston, 1975), use of duration in progress provides a biased estimate of the length of completed spells largely because long spells have a higher probability than short spells of being sampled at a point in time.

Because of this problem the emphasis in this paper will be on a reduced form of (1) and (2), namely

(3) $D = D(U,K,C)$

where D is now length of completed spells. Unfortunately, this introduces some ambiguity into both the expected signs of the variables and the interpretation of the coefficients. For example, a high skill level would reduce duration by making more vacancies accessible but might also increase duration by raising the reservation wage. Furthermore, a positive coefficient on marriage, for example, may be due either to married workers being more eager to find work (and thus reducing their asking wage) or to them being more attractive to employers and hence receiving more or better offers.

The data employed are those in the National Longitudinal Survey of Young Men (Parnes, 1970).[3] Information from two survey periods are employed, 1969-1970 (collected in 1970) and 1970-1971 (collected in 1971). These periods were chosen because they are the first for which complete information is available on every job held and on each spell of unemployment. The sample was limited to whites and blacks (other nonwhite being excluded). The analysis is limited to out-of-school youth.[4]

In the analysis of the reduced form equation (3) the unit of observation is each completed spell of unemployment which occurred between 1969-1971. This procedure insures that we are measuring the theoretically proper dependent variable.[5] In addition, only spells associated with job changing, entrance, or re-entrance into the labor market are included. Thus spells associated with temporary recalls are excluded. Whatever the importance of this class of spells for adults (Feldstein, 1975) they are not important for youth[6] and they are excluded because of expected differences in the pattern of job search.

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[3] The NLS data, for reasons not yet understood, report unemployment rates below those reported by the monthly Census and hence may seem a poor data source for examining unemployment. However, the racial ratios are very similar to those in the Census. For example, the October 1970 Current Population Survey reported racial ratios for out-of-school male 18-19 year olds of 1.84 and for 22-25 year olds 1.65. The NLS ratios for the same period were 1.88 and 1.66 respectively.

[4] No observation of a spell is included if it occurred while the youth was in school. However, because observations are pooled, as will be explained below, some youth in the sample were in school during some portion of the period.

The independent variables are defined as follows:[7]

Skills and Personal Characteristics

AGE: Age in years, measured at the beginning of the year.

KWW: This is the score on a knowledge of the world of work test administered by the interviewers. In addition to the possible direct importance of such a measure in explaining ability to find a job, it is also a good proxy measure of intelligence (Griliches, 1976).

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[5] Every spell which occurred any time between the 1969 and 1971 interviews is included. The only exceptions are spells in progress at the time of the 1971 interview. Those are excluded because information on their length is unavailable. Thus the measure employed here seems to be the closest possible approximation of the theoretically appropriate variable. There is still some bias since a very long spell, say one which began at the time of the 1969 interview and was still in progress at the time of the 1971 interview, would be excluded. However, the fact that the sample period is over two years long makes this bias of little practical importance since there is plenty of opportunity to capture long spells. For further discussion of this issue see Welch (1977).

[6] In the entire sample there were only 68 affirmative responses in the 1969-1970 period to the question "Did you experience a spell of unemployment while holding this job?"

[7] In these definitions the term "year" should be understood to refer to the interview period, either 1969-1970 or 1970-1971. When a variable is described as measured at the beginning of the year this means at the time of the 1969 interview if the spell occurred during 1969-1970 and at the time of the 1970 interview if the spell was in the 1970-1971 period.

EDUCATION: Years of education, measured at the beginning of the year.

DEPEN: Number of dependents, excluding the wife, measured at the beginning of the year.

DRAFT: "1" if eligible for the draft, "0" if not, measured at the beginning of the year.

MAR: "1" if married at the beginning of the year, "0" if not.

Search Cost Variables

UI: This is the fraction of wages replaced by unemployment insurance. The variable is (Total UI dollars received) /(Hourly wage of most recent job x 35 x weeks unemployed that year) and it is defined analogously to that employed by Ehrenberg and Oaxaca (1976). It is measured with error since data on the amount received is available for the entire year but not for each spell. Also, see footnote 9.

NONWG: This is nonlabor income (excluding transfer payments) received during the year. The availability of such income should permit, and perhaps encourage, more extended search.

Demand Variables

U: The local unemployment rate, measured in tenths of a point.

DU: The local unemployment rate at the end of the year minus the rate at the beginning of the year.

Other Variables

LINE: "1" if the spell began when the respondent left a previous job and if upon leaving the respondent had the next job lined up in advance, "0" otherwise.

LAYOFF: "1" if the spell began with a layoff from a previous job, "0" otherwise.

OLF: "1" if during the spell of unemployment time was also spent out-of-the labor force, in addition to time unemployed. "0" if not. Time out-of-the labor force spent in school or in the armed forces is not included in this measure.

An important peculiarity of the youth labor market is that an important fraction of unemployment is associated with entering and re-entering the labor force. This pattern is largely due to the work rhythm imposed by the school calendar and the process of leaving school. Spells of unemployment due to entrance and re-entrance are likely to differ from spells caused by job leaving or loss and hence are analyzed separately. The discussion here will emphasize non-entrance or re-entrance spells.[8]

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[8] Twenty percent of the total spells in the sample were due to entrance or re-entrance. A Chow test was performed to test the hypothesis that entrants/re-entrants and job leavers share the same equation and the hypothesis was rejected at better than the .01 level. Within the entrance/re-entrance group there were no significant racial differences and a Chow test failed to reject the equality hypothesis. The results for the analysis for entrants and re-entrants are available upon request.

The results of the duration equation are presented in Table 1. The two racial equations were tested for equality via the Chow test and the hypothesis of equality was rejected at the .05 level (F = 2.3). In addition, race was fully interacted with the variables in a pooled equation to test for significant differences among specific coefficients. The coefficients of DRAFT, U, and LINE are significantly different at the .05 level and the coefficients of AGE differ at the .10 level.

The interpretation of these coefficients must be tempered by the realization that the equation is a reduced form. Keeping this limitation in mind, there are several interesting results. Time spent out of the labor force, neither working nor looking, reduces the duration of unemployment. This is plausible since many jobs are found through word of mouth, and the word can easily be passed to someone not actively looking. Thus for youth the distinction between time unemployed and time out-of-the labor force can be tenuous. The impact of unemployment insurance seems marginal, and coefficients in both equations are insignificant and of opposite sign. However, as noted above, this variable is measured with potentially serious error and there are additional possible biases in its use.[9] A change in the unemployment rate (DU) has an identical impact on black and white duration, although the level of unemployment has

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[9] A spurious positive correlation between duration and benefits is caused by the fact that the NLS data do not tell us whether a worker is covered, only that he received benefits. Most states have waiting periods, and thus a minimum spell length is required for even a covered worker to receive benefits. See Welch (1977).

TABLE 1

DURATION EQUATIONS
(Standard Errors)

Variable	Black	White
AGE	0.511 (0.206)	0.006 (.174)
KWW	-0.024 (0.079)	-0.013 (0.059)
DRAFT	5.141 (1.474)	0.055 (0.029)
DEPEN	0.402 (0.449)	-0.092 (0.601)
EDUCATION	0.535 (0.255)	0.223 (0.210)
MAR	-3.246 (1.393)	-1.577 (1.049)
LAYOFF	3.243 (1.106)	0.643 (0.841)
LINE	2.314 (1.893)	-2.598 (1.353)
U	-0.003 (0.028)	0.073 (0.022)
DU	0.055 (0.031)	0.055 (0.029)
UI	-0.271 (0.466)	0.268 (0.585)
NONWG	0.001 (0.007)	0.003 (0.001)
OLF	-3.303 (1.589)	-2.385 (1.059)
CONSTANT	-10.140	1.600
N	247	412
F	3.421(13,233)	2.44(13,398)
SE	8.395	7.952
$\bar{R}^2$	.113	.043

opposite racial effects.[10] Finally, non-labor income increases the duration of spells for both races, although the effect is statistically significant only for whites.

A useful technique for summarizing the results of these equations is to decompose the differential into portions due to differences in the values of the variables of the two groups and differences due to the structure of the equations. This decomposition is reported in Table 2.[11] In this decomposition negative items are favorable to whites. The results indicate that difference in the structure of the equations implies that blacks have durations which are 1.200 weeks longer than they would be were they treated or behaved as whites. Given that their actual duration is 7.915 weeks they suffer durations which are 17% "too long". On the other hand, black characteristics are slightly "favorable". In particular, they have less education and non-wage income than do whites, both of which increases white duration. The sum of these favorable characteristics reduces their durations relative to whites by .403 weeks and this, when subtracted from the differential due to equation differences, leads to an actual differential of .797 weeks.

Because this estimate grows out of a reduced form (Equation 3) it is unclear how much of the unexplained racial gap is due to be-

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[10] In cross-sectional data the level variable may capture long run-equilibrium behavior. This is because of the very high correlation over time of an area's unemployment rate. Thus in this equation the level unemployment rate may serve as a proxy for structural characteristics of the local economy. Since high unemployment areas also tend to have high hourly wages the welfare interpretation is ambiguous.

[11] The formula is:

$$D = (\beta_0^W - \beta_0^B) + \Sigma\beta_0^W(\bar{X}_i^W - \bar{X}_i^B) + \Sigma\bar{X}_i^B(\beta_i^W - \beta_i^B)$$

where D is the total differential, i indexes the variables, and the superscripts refer to blacks and whites. The first and third terms on the right represent differences in the structure of the equations while the middle term represents differences in the values of the variables.

TABLE 2

DECOMPOSITION OF UNEMPLOYMENT DURATION

Variable	Difference Due to Characteristics	Difference Due to Equation Structure
AGE	-.003	-10.988
KWW	-.086	.297
U	.018	3.559
DU	.116	0
DEPEN	.057	-.513
EDUCATION	.258	-3.294
UI	.014	.079
DRAFT	-.002	-1.087
LAYOFF	.048	-1.152
NONWG	.124	.021
LINE	-.015	- .455
MAR	-.012	.581
OLF	-.114	.012
	.403	-12.940
CONSTANT		11.740
		-1.200

havioral differences and how much difference in treatment. The most important likely behavioral difference is the relationship between duration and reservation wage depicted in Equation 1 above. If young blacks have an "unreasonably" high reservation wage [12] or if their reservation wage declines less rapidly than it does for whites in the face of unemployment [13] then the consequence would be longer duration.

Table 3 presents a two-stage least squares estimate of the reservation wage equation for youth unemployed at the time of the 1970 or 1971 surveys. [14] All of the variables have been defined previously, with the exception of EXXP which is (AGE-EDUCATION-5). This is the standard experience variable employed in many earnings functions. The sample is limited to youth out-of-school at the time of the unemployment who were unemployed for reasons other than temporary lay-off, waiting for a new job to begin, or a labor dispute.

The results in Table 3 imply that little of the observed difference in duration can be attributed to differences in reservation wage formation. The coefficient on duration is only 5¢ per week apart for

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[12] A too high reservation wage might occur because blacks, perhaps due to inadequate information, over-value their potential earnings. Another possibility is that blacks, perhaps due to changing attitudes, are refusing to take jobs which offer them wages below that which comparable whites would earn. This shift in the supply curve could also explain the equalization of earnings found in earnings equations since these are actually reduced forms of supply and demand equations.

[13] In fact most studies of youth find they take the first job offered (Stephenson, 1976). However, the reservation wage mechanism might operate through patterns of search. If youth have information about the characteristics of firms they may search only among firms whose entry wage is equal to or better than their reservation wage.

[14] The duration equation is available upon request.

TABLE 3

TWO STAGE LEAST SQUARES RESERVATION WAGE EQUATIONS
(Standard Errors)

	WHITES	BLACKS
DURATION	2.471	7.025
	(6.411)	(4.384)
MAR	69.296	-26.195
	(28.99)	(36.011)
LINE	-100.162	3.994
	(154.009)	(82.679)
DRAFT	41.385	-29.418
	(24.989)	(27.549)
OLF	-37.601	55.067
	(21.958)	(27.565)
EXXP	22.149	6.451
	(16.245)	(10.750)
EXXP2	-.890	-.163
	(1.495)	(.805)
UI	-9.601	32.963
	(8.735)	(21.073)
KWW	.215	3.538
	(1.576)	(2.228)
DEPEN	33.625	10.155
	(20.259)	(13.984)
EDUCATION	21.507	-2.626
	(5.121)	(7.845)
CONSTANT	-95.572	64.831
	(70.105)	(105.36)
R^2	.511	.316
F	5.71(11,60)	1.88(11,45)
S.E.	74.7739	73.846
N	72	57

Note: The dependent variable is the hourly reservation wage in cents.

the two races.[15] When black mean values were substituted into the white equation the predicted reservation wage is $2.41 an hour, slightly higher than the actual value of $2.38. Thus the white and black reservation wage structures are essentially the same and there is no evidence that black youth unemployment is due to unrealistically high reservation wages.

Thus the key conclusion of this section, that an unexplained racial gap which implies durations of 17% "too long" for blacks, seems not to be due to behavioral differences, at least those captured in reservation wage behavior.

Spells of Unemployment

In this section we will examine spells of unemployment and seek to disentangle the effect of differences in endowments on the one hand and differences in treatment and behavior on the other. The most important conclusion which emerges from this effort is that, unlike the case of duration, the racial differences in spells of unemployment are largely due to either differences in background characteristics or behavior, and apparently not to differences in treatment.

The natural approach to this question is to estimate separate racial equations for the probability of a spell of unemployment and to compare the equations. However, it is important to distinguish between quits and layoffs. The same variable, for example the unemployment rate, has an opposite expected impact upon quits and layoffs and, therefore, we will estimate a separate model for each.

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[15] The positive, though insignificant, sign on the coefficients is contrary to that predicted by theory. Evidently for this sample duration has no effect on reservation. When the system was estimated using time not working (i.e., duration of unemployment plus time out-of-the labor force) the coefficient was 2.8, with a standard error of 3.7 for blacks and -4.6 with a standard error of 7.8 for whites.

Not all quits and layoffs lead to unemployment. In both instances, though presumably more so for quits, a separation can be followed by immediate acquisition of another job. Furthermore, the separation can also be followed by movement out-of-the labor force. The distribution of quits and layoffs into these categories is shown in Table 4. The figures in the table are the average of the 1969-1970 and 1970-1971 quit and layoff rates for youth out of school in those periods and the data reflects all job changes which occurred in those periods.

As is apparent from lines 4 and 8, both the overall layoff and the quit rates are higher for blacks than whites, the quit rate being 7% higher and layoff rate 20% higher. These results are not surprising; we expect to find blacks laid off more frequently than whites both because of discrimination and because of lower endowments. Furthermore, the poorer jobs held by blacks would lead them to quit more frequently. What is surprising about this table is that if one restricts attention to layoffs and quits resulting in unemployment, then while the differential remains roughly the same for layoffs (23%) it widens considerably for quits to 62% higher than the white rate. Evidently while blacks do not quit in general much more frequently than do whites, they are considerably more prone to quit into unemployment and less prone to quit and immediately find another job. It remains, of course, to see if this pattern persists after controlling for differences in personal characteristics.

Parenthetically, it is also interesting to note that this table supports the common view that most voluntary job changing does not result in unemployment. However, it is surprising to learn that a considerable fraction of layoffs (46.8% for whites and 44.2% for blacks) are also immediately followed by another job.

Our next step is to estimate quit and layoff models. In the analysis which follows attention will be limited to only those quits

TABLE 4

ANNUAL QUIT AND LAYOFF RATES

	Whites		Blacks	
	Rate	Percent	Rate	Percent
Layoffs				
(1) Resulting in Unemployment	.073	46.2	.096	50.5
(2) Resulting in Labor Force Withdrawal	.011	6.9	.010	5.2
(3) Followed by Another Job	.074	46.8	.084	44.2
(4)	.158	100	.190	100
Quits				
(5) Resulting in Unemployment	.072	22.1	.117	34.0
(6) Resulting in Labor Force Withdrawal	.035	10.7	.033	9.5
(7) Followed by Another Job	.218	67.0	.194	56.3
(8)	.325	100	.344	100

Note: The rates are averaged for two periods, 1969-1970 and 1970-1971. Only out-of-school youth are included. Percentages may not add up to 100 due to rounding.

and layoffs followed by spells of unemployment. The quit equations can be motivated by search theory, human capital theory, or some amalgam of the two. Accumulation of specific human capital and high wages should, holding the other variables constant, reduce the probability of quitting (Parsons, 1972). Potential other opportunities, indexed in this model by the unemployment rate, should increase the probability of quitting. Personal characteristics, such as marital status, dependents, and age, have an ambiguous effect depending upon their impact on the individuals' needs and taste for risk.

The variables in the quit equation which are new are TENURE, which measures years on the job, UNION, a dummy variable which takes on the value of "1" if wages are set by collective bargaining and "0" otherwise, and WAGE, the hourly wage measured in cents. In addition, a variable is introduced to test the hypothesis that one source of black quitting is discrimination on the job. The variable WTDIF is constructed by fitting a wage equation for whites, estimating what each individual would receive, and taking the difference between that value and the actual hourly wage.[16] A positive value for Blacks would indicate a wage below that predicted by the white equation and may be correlated with quitting.

In the layoff model the expectation is that specific human capital and a high skill level will reduce the probability of a layoff while increases in the unemployment rate should increase the probability (Oi, 1962). Temporary layoffs are again excluded from the analysis.

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[16] The auxiliary equation was:

$$\ln(\text{hourly wage}) = B_o + B\,\text{EDUCATION} + B_2\text{KWW} + B_3\text{TENURE} + B_4\text{UNION} + B_5\text{TENURE}^2 + B_6\text{EXXP} + B_7\text{EXXP}^2 + B_8\text{MAR}$$

See footnote 21 for a brief description of Flanagan's (1978) use of a similar variable.

In all the equations the dependent variable is dichotomous and takes on the value of "1" if a quit or layoff followed by unemployment occurred during the year and "0" otherwise.[17] As was the case in the duration analysis, the sample is pooled for two years, 1969-1970 and 1970-1971, and only youth out of school at the beginning and end of the period are included.

The equation was estimated to fit the logit functional form[18]

$$P = 1/1+e^{-BX}$$

where P is the dichotomous dependent variable, X is the vector of explanatory variable and B are the estimated parameters. A maximum likelihood estimation procedure was employed. The results of the logit quit and the layoff equations are presented in Table 5. Predicted probabilities for the mean values of the variables are provided in Table 6. The story told by this equation is somewhat surprising.[19] The uncontrolled gap for layoffs (Table 4) narrows but the gap remains. Thus even after controlling for personal characteristics, demand, experience, and job skills young black men still face a higher layoff probability, but the gap is not strikingly large. With respect to quits we find the surprising result that the gap widens. Blacks seem considerably more prone to quit into unemployment.

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[17] The incidence of multiple quits or layoffs during one year is very low. During 1969-1970 only 1.2% of whites and .7% of blacks experienced more than one layoff and for quits the figures are 1.1% and 1.4%.

[18] The logit functional form is convenient because it constrains predicted values to a (0,1) interval, a characteristic which is essential if the equation is to have a probability interpretation. In addition, McFadden (1973) has shown that under reasonable assumptions the logit form follows from utility maximizing behavior.

[19] Ordinary least squares estimates of linear probability models produce equivalent results. For example, for the quit equation the black values substituted into the white equation produce a predicted quit rate of .049.

TABLE 5

QUIT AND LAYOFF EQUATIONS
(absolute value of t statistics in parentheses)

	Quit		Layoff	
	Black	White	Black	White
CONSTANT	-2.178 (2.074)	0.208 (0.185)	-1.740 (1.918)	-0.461 (0.584)
AGE	0.055 (1.033)	-0.082 (1.499)	-0.026 (0.679)	-0.003 (0.089)
EDUCATION	0.153 (1.735)	-0.148 (1.741)	-0.033 (0.579)	-0.198 (4.418)
TENURE	-0.037 (0.584)	-0.619 (4.736)	-0.243 (2.881)	-0.514 (6.491)
DRAFT	0.556 (1.854)	-0.338 (1.108)	0.255 (0.839)	0.087 (0.323)
DEPENDENTS	0.025 (0.265)	-0.157 (1.262)	-	-
MAR	0.368 (1.044)	-0.324 (0.923)	-0.428 (1.818)	-0.449 (2.252)
UNION	0.293 (0.527)	0.045 (0.091)	-0.714 (2.483)	0.428 (2.215)
WAGE	-0.016 (2.365)	-0.001 (0.248)	0.002 (2.504)	0.0001 (0.135)
KWW	0.034 (1.494)	0.040 (1.937)	0.0006 (0.036)	-0.003 (0.297)
U	-0.001 (0.248)	0.010 (1.943)	0.002 (0.325)	0.022 (4.986)
DU	0.015 (1.787)	0.010 (1.811)	0.038 (4.061)	0.012 (2.548)
WTDIF	0.014 (2.143)	0.0006 (0.100)	-	-
- 2 *log likelihood	554.318	807.896	550.046	989.624

TABLE 6

PREDICTED PROBABILITIES OF QUITS AND LAYOFFS FOR BLACKS

	White Equation	Black Equation
Quits	.034	.120
Layoffs	.078	.089

In terms of the mechanics of the equations the key variables are AGE, EDUCATION, TENURE, AND WAGE. Increases in the values of the first three variables all decrease the probability of white quits but increase the probability of black quits. The only offset is WAGE in which a high wage decreases the probability of black quitting more so than is the case for whites.

The variable employed to test for quitting due to differential treatment, WTDIF, performs as expected both in its sign and significance. This is interesting because it lends support to the notion of shifts in supply as well as demand curves (footnote 12); however, the magnitude of the effect is small.

The explanation for the quit differential is elusive. The differential in overall quits, as opposed to quits into unemployment, is considerably smaller and hence (as we will see below) the structure of a general quit equation may be more similar across the races than the unemployment quit equation. Thus blacks may quit not much more frequently than whites but they have difficulty lining up the next job. Possible reasons for this will be mentioned in the conclusion, but this is a good point to summarize the results of the entire system of equations.

Table 7 summarizes the results of the several duration and spell equations and indicates how much additional unemployment can be attributed to each of the divergences between the actual black values and the value predicted by each of the white equations. As is apparent in each instance-- quits, layoffs and duration-- blacks experience more unemployment than they would had they been treated (or behaved) like whites. The difference in quit behavior accounts for nearly half of the additional unemployment, followed in importance by layoffs and duration. In the period 1969-1971 the average annual weeks of unemployment for out-of-school youth was 4.145 for Blacks and 2.252 for whites, thus the differential was 1.893 weeks. Column 4 of Table 7 shows the fraction of the total differential

TABLE 7

SUMMARY OF RACIAL DIFFERENTIALS FOR THE FULL SYSTEM

	(1)	(2)	(3)	(4)
QUITS	.096	.034	.490	25.8%
LAYOFFS	.117	.078	.308	16.2%
DURATION	7.915	6.715	.255	13.4%
				55.4%

Note:

(1): Actual Values for Blacks.

(2): Predicted Values Using White Equations and Black Characteristics.

(3): Extra Annual Weeks of Unemployment Due to Divergence of (1) and (2), Holding Remaining Variables Constant.

(4): Fraction of Annual Differential in Annual Weeks of Unemployment Accounted for by (3).

accounted for by the difference between actual values and those predicted by the white equations. This calculation implies that 55% of the total differential is due to differences in behavior or treatment while the remaining 45% can be explained by differences in personal characteristics.

As a final point, the reader may wonder why so little has been made of the role of distribution among industries. It is often thought that one reason blacks experience high unemployment is that they are concentrated in unstable industries. This, however, is not an important issue in these data. For example, in 1969-1970 blacks out of school at both the beginning and end of the period averaged 3.39 weeks of unemployment. Had they had the same industrial distribution as whites (but with the black within industry unemployment experience) they would have averaged 3.32 weeks of unemployment. The difference is small. Furthermore, the inclusion of industry dummy variables in the quit and layoff equations had no appreciable effect on the results.

DISCUSSION AND FUTURE TOPICS

The results presented here have shown that an important fraction of the racial differential remains after the various controls, that the most important source of this unexplained differential lies in quit behavior but that important components are also due to layoffs and duration.

The most puzzling finding is clearly the quit differential: layoffs and duration differences can plausibly be attributed to discrimination in firing and hiring. We will offer some additional explanations below, but first it is worthwhile to explore the quit issue a bit further (although we will not be able to resolve it).

It does not seem to be the case that blacks quit in general more frequently than do whites. We saw in Table 4 that the over-all quit rate of young black men is not appreciably higher than that of whites. We estimated via ordinary least squares a linear probability model for all quits (employing the same variables found in Table 5) and when black mean values were substituted in the white equation the predicted probability of a quit was .280 higher than the actual black mean of .264.[20] This stands in contrast with both the logit and the OLS results for quitting into unemployment.

Thus young black men are not especially quit prone. Rather it is that their quits are more likely to lead to unemployment than those of whites. One possible explanation might be found in the motives for quitting, but Table 8 seems to dispel this possibility. There is a clear difference in the reasons for quitting for those quits followed and not followed by unemployment. For example, the category "found a better job" is more important (for both races) for quits not followed by unemployment than by those which are. However, there do not seem to be major racial differences. For example, the nature of the job was cited by 51.9% of the blacks and 50.79% of the whites who quit into unemployment. Blacks do cite wages more often while whites cite working conditions but the impact

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20. This mean is below that in Table 4 because that Table includes multiple quits by one individual while the dependent variable in the regressions was only dichotomous. The equations reported here are available upon request.

TABLE 8

REASONS FOR QUITTING

	Blacks	Whites
Followed by Unemployment		
Nature of Job		
Hours/kind of work/conditions/ interpersonal/location	36.8%	44.6%
Wages	15.1%	6.1%
Found Better Job	10.4%	9.1%
Health	8.5%	14.4%
Other*	29.2%	25.7%
Not Followed by Unemployment		
Nature of Job		
Hours/Kind of work/conditions/ interpersonal/location	22.3%	20.5%
Wages	17.6%	11.6%
Found Better Job	26.8%	24.0%
Health	6.0%	4.4%
Other*	26.7%	38.9%

* Other includes return to school, military, prison, family and personal, and other.

of this is unknown.[21]

Another possible explanation of the differential may lie in different access to job contacts. Having decided to leave a job whites may simply be more able than blacks to line up the next job without experiencing unemployment. This may also be an explanation of the difference in the length of durations. Most jobs are found through personal contacts (Granovetter, 1976) and if blacks have fewer personal contacts than whites they may experience difficulty locating jobs. Statistical controls for personal characteristics may fail to capture this important "unobservable" and since personal contact networks help people of every education and skill level land jobs (Granovetter, 1976) it is unlikely that the effect of this variable would be fully captured by other measured variables. The consequence may be that blacks, even after controlling for personal characteristics, may still experience a harder time than whites in finding a job.

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[21] In a useful paper published after this article was completed Flanagan (1978) examined racial differences in quit and layoff experiences. The focus of the article was upon a variable similar to the WTDIF variable employed here and his results were generally comparable. As is the case here Flanagan found that the probability of quitting into unemployment is higher for young blacks than whites. He argued that this is due to an inverse relationship between time intensive search methods and wage rates (and skill levels). Low wage rates make time intensive search more desirable than goods intensive search. Because young blacks have lower average wage levels Flanagan argued that they more often choose to be unemployed while searching (i.e. use their time to search). However, this argument is not satisfactory. First, the NLS data do not reveal significant racial differences in job finding and job search methods (see below). Secondly, the quit equations reported here show a different structure across the races while Flanagan's arguement would imply a similar structure with the observed differences emerging from the different values of the variables (wage level and personal characteristics) which would lead to different choices of search behavior.

In the NLS data blacks and whites reported essentially the same pattern of job finding. For example, for youth out of school in 1969, 51.3% of the blacks and 44.2% of the whites found their jobs through personal contacts.[22] However, assuming that the peers and family of youth are similar to themselves, a smaller fraction of these contacts for blacks will be employed than for whites and thus the network may be less efficacious. Some evidence of this is found in interviews we conducted in Boston. The sample consisted of 150 non-college out of school males between the ages of sixteen and twenty-six, half from a white working class community (East Boston) and half from a black community (Roxbury). Of those who reported finding their current job via personal contacts 70% of the whites said that the contact was working in the firm where the job was found while for blacks the figure was only 42%. Thus contacts for whites may simply be more effective.

This argument clearly is tentative and requires more research, as does the general issue of the quit differential between blacks and whites. Thus, though we have come some way toward understanding the nature of the racial differential in unemployment, there is clearly more to learn. It should also be recognized that the results here are cross-sectional and thus cannot well explain changes in the differential over time. These shifts are important since in the mid-1960s the ratio of black to white youth unemployment took a sudden adverse shift for the worse, a shift to a level which has remained with us. A satisfactory understanding of this would require, at least in part, that we shift our attention away from the personal characteristics and behavior emphasized in this article and focus upon structural changes in the economy; changes such as the suburbanization of jobs, rising labor force participation of adult women, and changes in the structure of demand for youth labor.

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[22] Direct contact with the employed was used by 24.9% of the blacks and 22.8% of the whites. Newspaper ads were employed by 4.2% of the blacks and 5.7% of the whites.

THE CONSEQUENCES OF UNEMPLOYMENT

We know surprisingly little about the long-term consequences of teenage unemployment. Are teenagers who experience considerable unemployment handicapped later in their careers or is the effect transitory and unimportant? Arguments that the impact is considerable down the road could rely either on the assumed psychological impact of joblessness early in the working career or upon the missed opportunities to develop training and skills. On the other hand, the association of unemployment with moratorium behavior and the importance of new and re-entrants in unemployment would tend to imply that there are few long-term effects and that the real problem is one of lost output and income maintainence in the short run.

Little work has been done on this question and hence little can be said with confidence. An initial effort at shedding some light on the issue is presented in Table 9.

In this table the young men in 1968 are divided into three groups: those who had no unemployment in 1968, those who experienced between one and four weeks, and those who experienced five or more weeks. Within each of these three groups we look at their unemployment experience in 1966 and 1970 and determine the deviation of their unemployment in those years from the average unemployment experienced by the entire group (or subgroup) in that year. Thus, for example, whites with no unemployment in 1968 had 26% less unemployment in 1966 than all whites experienced in 1966 and 22% less unemployment in 1970 than all whites. Or, to pick another example, blacks with less than a high school degree who experienced one to four weeks of unemployment in 1968 had 12% more unemployment in 1966 than all blacks with less than a high school degree experienced that year and in 1970 had 91% more unemployment than all blacks with less than a high school degree had that year.

The advantage of looking at 1966 as well as 1970 unemployment is that the 1966 experience was obviously unaffected by the 1968 experience

TABLE 9

DEVIATIONS FROM EXPECTED UNEMPLOYMENT IN 1966 AND 1970 BY WEEKS UNEMPLOYED IN 1968

	0 Weeks, 1968		1-4 Weeks, 1968		5 or More Weeks, 1968	
	1966	1970	1966	1970	1966	1970
Whites	-26%	-22%	+77%	+35%	+266%	+126%
Blacks	-12%	-34%	+25%	+38%	+ 36%	+ 81%
16-19 Years						
Whites	-47%	-48%				
Blacks	- 6%	-43%				
20-23 Years						
Whites	- 7%	+ 6%	+37%	- 2%		
Blacks	0%	-45%	-11%	+37%		
24-26 Years						
Whites	-40%	-25%	+74%	+123%		
Blacks	-23%	-10%				
< High School Degree						
Whites	-29	-16%	+44%	-17%	+219%	
Blacks	- 9%	-42%	+12%	+91%	+ 16%	+ 53%
High School Degree						
Whites	-17%	-33%	+62%	+107%		
Blacks	-17%	-25%				
More than HS						
Whites	-51%	-11%				
Blacks	0%	-21%				

Age is as of 1968; Education as of 1970; Only those out-of school in 1967-68 included; Data not reported for cells less than 30.

and hence we can control for the unobserved differences in individuals which might have led them to experience more or less than average unemployment in both 1968 and 1970. Thus, to determine the impact of 1968 unemployment we look at the difference between the 1966 and 1970 figure.

The lesson from this table is quite striking. Considerable unemployment in 1968 does not adversely affect whites in 1970 but it does damage blacks and, conversely, little unemployment in 1968 does not help whites in 1970 but it does help blacks. This result holds for virtually all age and education groups.

This point can be made clearer if we look, for example, at the rows labled "whites" and "blacks." Whites who had no unemployment in 1968 had 26% less than average in 1966 and 22% less than average in 1970. Thus this group is clearly more successful than the average for whites but the zero unemployment in 1968 did not appreciably improve the situation in 1970. On the other hand, for blacks, those with zero unemployment in 1968 had 12% less than the average in 1966 and 34% less than the average in 1970. Thus, while the 1966 figure indicates that the group is somewhat special, the 1970 figure is an improvement beyond expectations.

A similar picture emerges for groups with high 1968 unemployment. Thus, among all whites with five or more weeks in 1968 the 1966 figure indicates that the group is in difficulty to begin with but the 1970 figure is an improvement and is a regression to the mean. On the other hand, for blacks with five or more weeks in 1968 the 1966 figure also indicates trouble independent of the 1968 experience, but the 1970 figure is a worsening of the situation.

These patterns are quite consistent throughout the table and seem to indicate that whites are relatively unaffected by their early unemployment experience while blacks are very much affected. I say "seem to indicate" because these results are only correlational; they do not prove cause and effect. Nevertheless, the figures seem powerfull and persuasive.

Why should we find these patterns? Once again, the answer is not known, but some plausible explanations are available. It may be, for example, that young blacks become in some sense more discouraged than whites. Or it is possible that employers hold a sporadic employment record against blacks but are inclined to overlook this for whites. Both explanations are possible, but a more persuasive explanation relies on our earlier discussions of job-finding techniques and how these differ by race. The data on consequences just presented seem to imply that whites in effect get more than one chance to "make it," but that for a black the chance, if any, comes once, and if available and taken the young black remains unusually stable and if missed then a worsening of employment prospects occurs. A pattern like this would result if whites relied on informal contacts--and hence could repeatedly receive help--while blacks were more dependent on formal institutions and thus both had their access rationed and were likely to be turned away in the face of a poor prior record. In this situation, blacks who did land a stable job, or a job with the potential for stability, would be much more likely to hold on to it and thus we would observe, as we do, early stability (or lack of unemployment) being more strongly correlated with later unemployment for blacks than whites.

This explanation is tentative and speculative and should be treated as such. However, the fact seems to remain that unemployment has more serious consequences for black than white teenagers and thus should add greater urgency to the formulation of policy.

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THE EFFECTS OF CHILD LABOR LAWS ON YOUTH EMPLOYMENT

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ABSTRACT

Child labor laws are a relatively neglected aspect of public policy towards youth employment. This is partly due to the difficulty in reducing the diverse state and federal laws in the child labor area into a quantifiable index. This study attempts to surmount the quantification barrier and analyze the employment effects of child labor laws.

Despite their name, child labor laws really regulate employment of teenagers, not children. They typically permit restricted labor force activity during ages fourteen to seventeen and do not apply at older age levels. Hence, comparisons of the employment behavior of those below age eighteen and those eighteen years or older should reflect the effects of the laws.

At approximately age eighteen, individuals typically graduate from high school. Thus, a general sample of young people is likely to be dominated by the effects of graduation, particularly in regard to the availability for work. To avoid confounding the graduation effect with the legislative effect, a sample of high school dropouts aged fourteen to twenty-one was drawn from the 1970 Census of Population. Comparisons of those younger than eighteen with those eighteen and above indicate that employment shifts toward sectors restricted by child labor at the eighteenth birthday. This shift suggest that the laws do restrict employment in selected sectors. A more tenuous analysis suggests that the laws have the effect of restricting total employment (as opposed to its pattern) for dropouts under age eighteen.

Arguments for child labor laws include the proposition that premature employment leads to "dead-end" jobs. Census data on occupational mobility of young people during 1965-1970 do suggest a considerable degree of immobility. Since dropouts tend to obtain lower status jobs, occupational immobility tends to keep them in such employment. However, the paper questions whether current public policy is an appropriate response to this phenomenon.

INTRODUCTION

One hundred years ago, the normal activity of a teenager would have been work, not school. Today, it is assumed that the opposite should be true. Public policies, especially child labor laws and school leaving laws, reinforce this popular conception. Child labor laws restrict youth

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employment in certain occupations and industries. School leaving laws limit the availability of young people for work. This paper presents an empirical analysis of the employment impact of such legislation.

Both school leaving laws and child labor laws were the products of public reaction to perceived evils in the period from the late nineteenth century to the early twentieth. These laws have been periodically updated. But since the 1930s, they have received little critical attention. Despite this neglect, current concerns about youth employment problems must inevitably force a re-examination of the impacts of these programs.

Rethinking public policies is not an easy task; remaking public policies is even harder. Current legislation with regard to "child" labor --really teenage labor--could not be changed without creating some adverse effects.[1] Inevitably, there would be concern about the impact on the adult labor market of an increase in the supply in teenagers. But the fact that reform is complicated and raises potentially controversial issues is not reason for avoiding the needed review.

Indeed, it could be argued that the time is especially right for a re-appraisal. Historically, child labor laws and female protective labor laws were seen as part of a package; both women and children were seen as needing special state protection at the turn of the century. Although female protective labor laws seemed sacrosanct, the desexing of state labor codes--under the impetus of Title 7 of the Civil Rights Act of 1964--was accomplished smoothly.[2] The lessons from that episode should carry over into child labor law reform. Moreover, the recent decline in birth rates will reduce the proportion of teenagers in the working age population during the next two decades. Youths fourteen to seventeen accounted for

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[1] This study does not concern itself with agriculture, where use of preteenage children is a source of controversy. The youth employment problems discussed below are basically urban problems.

[2] See Raymond Munts and David G. Rice, "Women Workers: Protection or Equality?" Industrial and Labor Relations Review, vol. 24 (October 1970), pp. 3-13.

10.5% of the population of fourteen and above in 1970, but will account for only 6.8% of the population by 1990, a reduction of well over one third.[3] Thus, concerns about the impact of teenage employment on adult job opportunities should be lessening.

Recent studies on child labor laws have been rare. One unpublished study attempted to relate such laws to juvenile delinquency rates.[4] Another relied heavily on employer interviews.[5] The problem has been that the laws, which vary from state to state and between the states and the federal government, have seemed inherently resistant to quantitative analysis. When studying protective legislation, economists have tended to prefer analysis of the minimum wage and its impact on teenage employment, probably because the minimum wage can be expressed as a number. Ironically, state minimum wage provisions and child labor laws are usually found in the same labor codes. And, of course, federal child labor provisions are included in the Fair Labor Standards Act, the same statute which establishes the federal minimum wage and overtime provisions. Thus, a researcher interested in teenage minimum wage impacts cannot help but run across the child labor provisions in these various statutes.

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[3] The estimate for 1990 is from the Census Series II projection. Data from U.S. Bureau of the Census, *Statistical Abstract of the United States, 1976* (Washington: Government Printing Office, 1976), p.6.

[4] Donald G. Woodworth, *The Effects of Laws Governing Youth Employment and School Attendance on Youth Offenses and Delinquency*, unpublished report by Stanford Research Institute prepared for the Office of Juvenile Delinquency and Youth Development, U.S. Department of Health, Education and Welfare, December 1965. (Report available from Educational Resources Information Center.)

[5] National Committee on Employment of Youth, *The Transition from School to Work: A Study of Laws, Regulations and Practices Restricting Work Experience and Employment Opportunities for Youth*, unpublished report prepared for the U.S. Office of Education, June 1975. It might be noted that the committee which sponsored the report--which is critical of unwarranted legal restrictions on teenage employment--was formerly the National Child Labor Committee, the major forum for child labor law advocates in the early twentieth century. See Walter I. Trattner, *Crusade for the Children: A History of the National Child Labor Committee and Child Labor Reform in America*, (Chicago: Quadrangle Books, 1970).

It would be incorrect to suggest that contemporary observers have been unconcerned about the possible effects of child labor laws. But there have been relatively few specific proposals for reform. Most proposals have been quite general. A typical example is a recent book by Willard Wirtz, the former Labor Secretary. Wirtz states that:

> Federal and state prohibitions on persons under eighteen working in "hazardous occupations" are perhaps significantly involved (as a barrier to youth job opportunities). Although federal offices report that only about 5 percent of all employment is foreclosed to sixteen and seventeen-year-olds by such prohibitions, employers manifest a considerable concern about their scope ... It adds to this confusion that the types of employment allowed for fourteen and fifteen-year-olds are considerably more limited ... A comprehensive effort must be made to eliminate these misunderstandings.[6]

Wirtz makes two points. First, he suggests that the effect of child labor laws should be small--that only 5% of potential employment is affected. The difficulty with this estimate is that it ignores the fact that teenagers are not likely to enter many forms of employment, especially those requiring professional training and skills. What matters is the proportion of jobs which could reasonably be sources of employment and which are in fact restricted by law. For reasons to be discussed below, it is difficult to pinpoint precisely which occupations and industries are directly or indirectly affected by child labor laws. However, a sample of high school dropouts was assembled for analysis in this paper. It was found that roughly half the males and a fourth of the females in the sample worked in occupations and industries which appear most likely to be affected after they attain age 18. Since youngsters 18 years of age and older are no longer subject to child labor restrictions, the potential impact of the laws on younger workers appears larger than Wirtz's 5 percent estimate.

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[6] Willard Wirtz, The Boundless Resource: A Prospectus for an Education-Work Policy (Washington: New Republic Book Co., 1975), p. 60.

The second suggestion is that the problem could be alleviated by supplying more information to employers. In fact, there is no shortage of Labor Department pamphlets on the subject. The difficulty is that the assertion contained in such pamphlets--that the laws are basically simple to understand and obey--is false.[7] Instead, the laws are complicated, confusing, and overlapping.

DEVELOPMENT OF CURRENT POLICY

Two legal questions surround the field of child protective legislation. First, at what age do individuals become responsible for their own behavior and choices? The long-term rise in living standards has gradually permitted this age to rise, and only recently has a countertrend of "children's rights" begun to develop.[8] Second, below the critical age of maturity, who will be the party responsible for making decisions for minors? Basically, the alternatives have been family and state. For questions of education and work, child labor reformers gradually pushed the age of maturity up to eighteen years. Furthermore, they advocated a major role for the state--rather than the family--in dealing with these issues.[9]

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[7] As an illustration, consider a recent Labor Department release designed to convince employers "that there is nothing complicated about the laws governing summer jobs." The release goes on for three pages describing federal laws, and then notes that employers had better check up on state laws as well. In fact, a perusal of the release is sufficient to convince the reader that the laws are complicated and that the simple way to avoid violating them is to avoid hiring teenagers in a number of broad industrial sectors. See "Elisburg Explains the Laws Applying to Summer Jobs for Teenagers," U.S. Department of Labor, Employment Standards Administration press release, June 12, 1977.

[8] Readings on the issue of children's rights can be found in Robert H. Bremner, ed., The Legal Rights of Children (New York: Arno Press, 1974). Recent litigation has centered on the rights of juvenile delinquents to due process procedures, the rights of dependent children in divorce cases, and rights of expression in student newspapers. The minimum voting age was lowered to eighteen years by the twenty-sixth amendment to the constitution. Some observers have claimed that the age of physical maturity, i.e., puberty, has been declining. On the last point, see John A. R. Wilson, et al, Psychological Foundations of Learning and Teaching, second edition (New York: McGraw-Hill, 1974), p. 302.

A complicated web of social and economic forces contributed to the rise of the child labor law movement. Industrialization brought about a rise in productivity which made it economically feasible to delay work until the late teenage years. As a consumption good, it might be expected that an increased demand for education would arise as living standards rose. From an investment viewpoint, industrialization appeared to create a wide disparity in wage differentials between skilled and unskilled workers.[10] To the extent that education provided a route into skilled employment, the demand for it could be expected to increase.

Industrialization also meant that child labor would take place in the context of an employer-employee relationship rather than a parent-child relationship, at least in urban areas. The conversion of child labor into a market transaction brought it to greater public attention. In contrast, reformers tended to romanticize the virtues of child labor on family farms --even on subsistence farms--despite some contrary evidence.[11] The fact that child labor laws are generally less strict in agriculture is partly due to this tendency.

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[9] An excellent compilation of documents relating to child labor, child labor laws, and related issues can be found in Robert H. Bremner, ed., Children and Youth in America: A Documentary History (Cambridge, Mass.: Harvard University Press, 1970-74).

[10] See Harry Ober, "Occupational Wage Differentials, 1907-1947," Monthly Labor Review, vol. 67 (August 1948), pp. 127-34; and Paul G. Keat, "Long-Run Changes in Occupational Wage Structure, 1900-1956," Journal of Political Economy, vol. 68 (December 1960), pp. 584-600.

[11] For more on this issue, see Daniel J. B. Mitchell, "A Furor Over Working Children and the Bureau of Labor," Monthly Labor Review, vol. 98 (October 1975), pp. 34-36.

Urbanization also weakened the importance of the family as a self-contained production unit. [12] The failure of the family to maintain control over children among the urban poor led to the phenomenon of "street children" who still have counterparts today throughout the less-developed world and in contemporary American city slums. [13] The visibility of such street children led inevitably to the view that "the public must in some measure take the place of those who ought to have been their natural guardians and protectors." [14] The groundwork was thus laid for state intervention in matters of employment and education, because the traditional family was viewed as an inadequate control.

Opinions on why parental authority was inadequate varied. Some reformers simply viewed poor parents as greedy exploiters of their own progeny. Others assumed that the seeming lack of parents' concern for their children's educational needs or for the perils of too-early labor force participation stemmed from the regrettable ignorance of foreign or rural immigrants into urban centers. Some also saw required public education as a method of weaning immigrant children from their alien cultures. [15]

As a result of pressure for child labor laws and schooling laws, most states by the turn of the century required education somewhere between ages

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12. Stuart M. Blumin, The Urban Threshold (Chicago: University of Chicago Press, 1976), p. 245.

13. For a view from the early part of this century, see Edward N. Clopper, Child Labor in City Streets (New York: Macmillan, 1912). A contemporary description can be found in Claude Brown, The Children of Ham (New York: Stein and Day, 1976).

14. A quote from officials of the New York House of Refuge, an agency which began to receive public grants in 1829. See Joseph M. Hawes, Children in Urban Society: Juvenile Delinquency in Nineteenth Century America (New York: Oxford University Press, 1971), p. 46.

15. Bremner, Children and Youth, vol. 2, p. 605.

seven or eight and fourteen to sixteen. In addition, some limitations on minimum wages and maximum hours of work for minors in industry were often provided. According to the 1900 Census, children in the age bracket ten to fifteen generally did not work but a minority of above 26% did, with agriculture being the most significant employer.[16] Recent evidence suggests that minimum schooling requirements in the nineteenth century tended to follow actual practice, i.e., those states with high educational attainment rates tended to raise their minimum school leaving ages. And it does appear that early state child labor laws restricted employment in certain sectors.[17]

Within the child labor reform movement there developed a rift between those who wished to continue pressuring the states for stricter laws, and those who desired federal legislation. Ultimately, the movement united behind a push for a federal law. The initial outcome of this effort was the creation of the federal Children's Bureau of 1912, an agency which continues today, but no longer has responsibility in the child labor area.[18] Two attempts to pass federal statutes limiting child labor--one in 1916 and another in 1918--ran afoul of Supreme Court decisions declaring them unconstitutional. Child labor reformers then sought a constitutional amendment, an effort which failed after a fierce opposition campaign during the state ratification process.

The need for a special amendment ended with the change in stance of the Supreme Court toward such legislation in the late 1930s and early

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[16] Idem.

[17] See William M. Landes and Lewis C. Solmon, "Compulsory Schooling Legislation: An Economic Analysis of Law and Social Change in the Nineteenth Century," Journal of Economic History, vol. 32 (March 1972), pp. 54-91; and Allen R. Sanderson, "Child-Labor Legislation and the Labor Force Participation of Children" Journal of Economic History, vol. 34 (March 1974), pp. 297-99.

[18] See Robert H. Bremner, ed., The United States Children's Bureau, 1912-1972 (New York: Arno, 1974).

1940s. Congress passed the Fair Labor Standards Act (FLSA) in 1938, which contained child labor provisions along with minimum wages and overtime regulations. Since 1938, child labor has been regulated at both the state and federal levels.

CURRENT REGULATIONS

Under the federal FLSA, illegal use of children or teenagers is defined as "oppressive child labor." Enterprises considered to be in interstate commerce under the act are prohibited from using oppressive child labor in the production of goods and services. Shipments of such goods ("hot goods") across state lines are also banned.

Outside agriculture, employment below age fourteen is basically prohibited, except for a few insignificant exceptions. Employment during ages fourteen and fifteen is forbidden in manufacturing, mining, and other areas found to be hazardous by the Secretary of Labor. At ages sixteen and seventeen, employment is regulated by means of "hazardous orders" issued by the Secretary of Labor which declare certain types of jobs to be detrimental to the health and well-being of teenage employees. These orders are most likely to affect manufacturing, mining, construction, transportation, and utilities, especially in occupations where contact with machinery, chemicals, explosives, and so forth is a possibility.

Special regulations issued by the Secretary of Labor limit hours of work for fourteen and fifteen-year-olds. When school is not in session, employees in this age bracket may not work more than eight hours per day nor more than forty hours per week. During the school year, the limits are eighteen hours per week and three hours per school day. In addition, other limits are applied on the hours during which work may take place.

Certain exceptions to the general rules apply for vocational programs. For example, provisions are made for work/study arrangements for fourteen and fifteen-years-olds under "work experience and career exploration programs." These WECEP programs are aimed at dropout-prone students, and provide work experience under supervision of local school authorities. Evidence from these programs suggests that the jobs provided have not in fact interfered with school performance; they may even have improved it.[19] There are also special exceptions for student learners and apprentices. However, a "Catch-22" applies, since apprenticeship programs often do not accept applicants below age eighteen, or require a high school diploma.[20]

An important element of federal policy is that the FLSA's section 18(a) permits state law to override the federal regulations, whenever the state law is stricter. In short, the provision applicable to an employer is always the stricter of the federal and state requirements. State laws vary considerably so that the importance of the FLSA compared with the state requirements will vary from state to state. In a given state, the FLSA may be applicable to certain youngsters and state law to others.[21]

It is not possible to review the various state laws.[22] However, it is worth pointing out that state laws may be scattered in various codes, a feature which makes it more difficult for employers to determine requirements. For example, in California it is necessary to consult the labor, education, and insurance codes to locate the relevant child requirements in the state. (The insurance code deals partly with workers' compensation laws, which have special features with regard to injury of illegally employed minors.) Certain sections of the administrative code are also applicable.

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[19] Dennis Roth and Ernst W. Stromsdorfer, An Analysis of the Educational and Economic Impact of the Work Experience and Career Exploration Program, unpublished working paper of the Office of the Assistant Secretary for Policy, Evaluation, and Research, U.S. Department of Labor, May 29, 1975.

[20] Other federal policies have an effect on teenage employment. In particular, although the FLSA permits some employment of 14-15 year olds, the Walsh-Healey Act--which applies to federal contractors--prohibits employment of youngsters under age sixteen.

[21] As an example, in California no provision is made for WECEP programs in the state law, so such programs cannot operate since state law overrides the federal. However, the FLSA is generally stricter for youngsters sixteen to seventeen-years-old than the state law.

[22] A somewhat dated summary of state child labor laws can be found in U.S. Bureau of Labor Standards, State Child Labor Standards, Bulletin 158, revised 1965 (Washington; Government Printing Office, 1965). Highlights of revisions in state laws can be found annually in the Monthly Labor Review.

State laws generally follow the FLSA in terms of the types of coverage. Typically, regulations vary at different age levels, with younger workers subject to stricter standards. Certain types of employment are restricted on the grounds of physical or moral hazard. Hours are limited to dovetail with school requirements. The main unifying point about both state and federal laws in this area is that application basically ceases at age eighteen. Thus, despite the difficulty in summarizing the details of the laws, comparisons of the labor market behavior of youngsters below age eighteen with that of those above that age can provide some indication of the impact of overall child labor policy.

SECTORAL EMPLOYMENT IMPACTS OF CHILD LABOR LAWS

The dearth of professional studies on the impact of child labor laws leaves open the question of whether such laws have any impact at all. Perhaps, due to inadequate enforcement or a "natural" avoidance of modern-day teenagers of the types of jobs which are restricted, the laws do not influence labor-market behavior. In principle, the laws seek to shift teenage employment from certain sectors which are declared "off limits" to others which are considered to be more desirable. Hence, it is essential to examine available employment data to determine if such an employment-shifting effect can be detected. If it cannot, there is little point in considering the reform of laws which--for whatever reason--have no noticeable influence.

School dropouts are more likely than other teenagers to be affected by child labor laws. Dropouts are potentially available for full-time work while students are not. Hence, if the impact of child labor laws is detectable, the logical place to look is within a sample of high school dropouts.

The 1970 Census of Population "public use sample" computer tapes were used to provide a data base of individuals not enrolled in school, with educational attainment of less than a high school diploma. Residents of rural areas, who are not the focus of this study, were deleted. Analysis was confined to the West South Central, Mountain, and Pacific regions.[23] The limitation of the study to the western states was dictated by the availability of computerized data and computer time. It is believed, however, that the results discussed below have general applicability despite possible variations of state child labor laws across regions. This is because the federal regulations constitute a floor on state variation. Only individuals within the age range fourteen to twenty-one were included. This decision permitted observation on both sides of the eighteenth birthday while excluding individuals who were well into adulthood. A total of 7,764 individuals were selected, 48.5% of whom were male. Since the sample contains only one percent of those surveyed by the Census, the sample represents 776,400 persons in the western area. Within the sample, 2,724 persons were employed.

Initially, the goal was to determine whether child labor regulations had the anticipated effect of pushing employed dropouts in the sample away from sectors restricted by these laws. It is difficult to pinpoint industries and jobs which are specifically covered by child labor restrictions. But it is possible to designate certain industrial sectors and occupational classes which seem most prone to regulation. A reading of the laws suggests that the industries most likely to be affected are mining, construction, manufacturing, transportation, and utilities. The occupations most likely to be affected are blue collar wage-earning positions.[24] (Unpaid family employment is less strictly regulated.) Thus, one approach used was simply to define employment in the industries and occupations enumerated above as the "covered" sector, and all other employment as "uncovered."

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[23] For details on the public use sample, see U.S. Bureau of the Census, Public Use Samples of the Basic Records from the 1970 Census: Description and Technical Documentation (Washington: Government Printing Office, 1972). A comparison of the Western sample with published Census data for the entire urban United States suggests that no substantial demographic distortions were introduced by confining the sample to the western area. However, nonwhites tend to be somewhat underrepresented in the west compared with the entire country (17.4% of the dropout population aged fourteen to twenty-one versus 23.9%).

Since one goal of child labor legislation is to reduce exposure to unsafe working conditions, a second method of designating sectors likely to be heavily affected by child labor regulation was also utilized. As a byproduct of the Occupational Safety and Health Act of 1970, statistics on industrial work-injury rates are available. Thus, it is possible to determine accident rates according to detailed industry code and to isolate those industries with above average injuries per 100 full-time employee equivalents. Blue collar wage-earning employment in such industries was designated as "hazardous" and all other employment as "nonhazardous."[25]

If child labor laws had been constructed after detailed study of hazards, designation based on work injury rates would presumably capture sectors which were not available when most child labor provisions were drawn up. So despite the quantitative aspect of the hazardous/nonhazardous dichotomy, there is no reason to assume that it captures effects of child labor laws better than the simpler covered/uncovered classifications. In any case, there is considerable overlap between the covered and hazardous sectors.

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[24] Blue collar employment was defined as including the following Census occupation classes: craftsmen and kindred workers, operatives, laborers, and farmers.

[25] Industries were classified at roughly the three-digit S.I.C. level on the basis of recordable occupational injury and illness rates in 1973. (In a few cases of missing data, 1972 rates were used.) The mean rate for the private sector in 1973 was 11 cases per 100 full-time employee equivalents. Source: U.S. Bureau of Labor Statistics, Handbook of Labor Statistics 1975--Reference Edition (Washington: Government Printing Office, 1975). The use of the mean rate of injuries to classify industries is obviously arbitrary. It is possible that an alternative cutoff point would have produced different results. However, the general similarity of the results of the two alternative classification schemes described in the text suggests that the general conclusions would not vary with reasonable definitions of hazardous industries.

The first step in the analysis of employment patterns within the dropout sample was to determine whether the sectoral composition of employment shifts toward the covered or hazardous sectors at age eighteen. To make this determination, the sample was divided into employed individuals age fourteen to seventeen (ages regulated by child labor laws) and ages eighteen to twenty-one (ages not regulated by child labor laws). The sample was then subdivided into sex, race, and other demographic categories. Since the sample was relatively small, substantial disaggregation was not possible.

Table 1 summarizes these breakdowns for employed individuals. In all categories, except for nonwhite females, a higher proportion of those aged eighteen to twenty-one worked in the covered or hazardous sectors than those aged fourteen to seventeen. Of course, some of the cells are too small to permit much to be said about significance.[26] But in most of the larger cells, a statistically significant shift in employment patterns --in the direction child labor laws would lead one to expect--does occur. The shift seems to be greater for males than for females, probably reflecting a lower propensity of females at all ages to seek blue collar work in the restricted sectors.

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[26] An approximately normal distribution was used to test for statistical significance. The test statistic was defined as the ratio of the difference in sample proportions to the standard error of the difference. See Robert V. Hogg and Allen T. Craig, Introduction to Mathematical Statistics, third edition (New York: The MacMillan Company, 1970), pp. 201-2. For some of the smaller cells of Table 1, this test may be inaccurate. Most of the cells, however, contain at least fifty individuals, a point considered to be the cutoff for reasonable accuracy of the test.

These conclusions continue to hold when the sample is disaggregated along demographic lines. For example, there is no evidence of any differential on nonwhite females. (Of course, a large sample size for this group might be more revealing.) The results for nonwhite males are not substantially different than those for whites, and are less statistically significant. Young people not living with both parents and who are not themselves married with spouse present can be expected to have less adult guidance (or less adult responsibility) than other youngsters. But the differences between the sectoral employment composition of the older and younger individuals not living in husband-wife families are smaller and less significant than the differences for those who do live in such families. Similarly, since youth employment problems are often associated with large urban centers, it might be expected that those living in the larger cities would be more affected by child labor laws than those who do not. But the table indicates only slight differences in the results for larger and smaller urban areas.

Some evidence on the maturity effect can be found on Table 1. As was previously noted, comparisons of older and younger workers might be influenced by differences in maturity which alter employability in various sectors. One element of maturity at the age range in the sample is the tendency to be married. Only 14% of the males in the younger age group were married with spouse present, compared with 41% of the older males. The figures for females were 19% and 41%, respectively. However, even when the sample is broken down into single and married individuals, the gaps in the proportion employed in covered or hazardous jobs at the two age brackets remain. If marriage is important in determining these sectoral employment ratios--and it does seem to boost the ratios for males--it is still not sufficient to eliminate the marked shift in employment at age eighteen in the dropout sample.

There are, of course, other facets of maturity besides marriage. But whatever maturity entails, it seems unlikely that adulthood is a quality which is bestowed on an individual as a one-shot event at age eighteen. It seems more reasonable to assume that maturity accrues gradually. If

TABLE 1
EMPLOYMENT COMPOSITION OF EMPLOYED SCHOOL LEAVERS

Sector	Males 14-17 years	Males 18-21 years	Males Test Statistic	Females 14-17 years	Females 18-21 year	Females Test Statistic
Total Sample						
Sample size	399	1327	-	238	760	-
Covered (%)	32.3	49.1	6.16	13.5	23.7	3.79
Hazardous (%)	42.4	52.9	3.73	12.6	19.5	2.65
Whites						
Sample size	353	1118	-	198	642	-
Covered (%)	32.0	49.3	5.96	12.1	24.8	4.40
Hazardous (%)	43.1	53.1	3.32	11.6	19.6	2.90
Nonwhites						
Sample size	46	209	-	40	118	-
Covered (%)	34.8	47.8	1.67	20.0	17.8	-.30
Hazardous (%)	37.0	51.7	1.86	17.5	18.6	.16
White Blue Collar Workers (A)						
Sample size	224	863	-	37	190	-
Covered (%)	39.7	57.4	4.81	48.6	72.1	2.66
Hazardous (%)	57.1	62.1	1.35	37.8	52.1	1.63
Nonwhite Blue Collar Workers (A)						
Sample size	24	139	-	14	27	-
Covered (%)	37.5	65.5	2.62	50.0	74.1	1.53
Hazardous (%)	45.8	70.5	2.27	42.9	70.4	1.73
Living in Husband-Wife Families (B)						
Sample size	291	977	-	159	535	-
Covered (%)	33.7	51.4	5.33	10.7	23.6	4.20
Hazardous (%)	44.3	56.1	3.55	10.7	18.9	2.75
Not Living in Husband-Wife Families (B)						
Sample size	108	350	-	79	225	-
Covered (%)	28.9	42.6	2.92	19.0	24.0	.95
Hazardous (%)	37.0	44.0	1.30	16.5	20.9	.89
Single C						
Sample size	342	784	-	192	446	-
Covered (%)	31.0	45.2	4.62	14.1	21.7	2.42
Hazardous (%)	41.2	40.0	-.36	13.0	18.2	1.69

TABLE 1
(Cont'd)

	Males			Females		
Sector	14-17 years	18-21 years	Test Statistic	14-17 years	18-21 years	Test Statistic
Married-Spouse Present						
Sample size	57	543	-	46	314	-
Covered (%)	40.4	54.7	2.10	10.9	26.4	2.98
Hazardous (%)	49.1	59.9	1.54	10.9	21.3	2.04
Living in Smaller Urban Areas (D)						
Sample size	177	579	-	108	326	-
Covered (%)	32.8	45.9	3.22	12.0	21.5	2.44
Hazardous (%)	42.9	51.1	1.92	13.0	17.8	1.25
Living in Larger Urban Areas (E)						
Sample size	222	748	-	130	434	-
Covered (%)	32.0	51.5	5.38	14.6	25.3	2.87
Hazardous (%)	41.9	54.3	3.28	12.3	20.7	2.42

(A) See footnote 24 of text for occupations included.

(B) Living with both parents or married, spouse present.

(C) Includes never married as well as divorced, windowed, and separated.

(D) Urban areas of 500,000 population or less.

(E) Urban areas of population greater than 500,000.

Source: see text.

so, a better understanding of the maturity effect might be obtained from a more detailed age breakdown that was shown on Table 1.

Two problems arise when detailed age groupings are used. First, the sample size in any cell is reduced, decreasing the precision of the estimates. Second, comparisons of fourteen- to fifteen-year-olds with sixteen- to seventeen-year-olds are distorted by the differences in child labor laws which apply to these two age brackets. Both these considerations suggest that special attention should be paid to a comparison of eighteen- to nineteen-year-olds with twenty- to twenty-one-year-olds. The sample size is larger for these older persons than for the younger group and neither age is covered by child labor laws, except for possible "echo" effects for individuals not far beyond their eighteenth birthday.[27]

Table 2 shows that for males--both white and nonwhite-there is no significant shift in employment patterns toward restricted work between ages eighteen to nineteen and twenty to twenty-one. If maturity was pushing employment toward the restricted sectors at these age levels, a significant shift would be expected. The fact that none is found suggests that growing maturity by itself does not bias employment toward sectors restricted by child labor laws, at least at ages not far above the years when child labor laws apply. The gap between ages sixteen to seventeen and ages eighteen to nineteen, in contrast, is always significant and positive.

For females, the pattern is less clear. First, nonwhite females--when examined on Table 1--show no evidence of a shift toward restricted

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[27] Those who are just beyond their eighteenth birthdays may not have had sufficient time to change their sector of employment. Since these echo effects of child labor laws will reduce the significance of differences in the sectoral employment ratios between sixteen to seventeen-year-olds and eighteen to nineteen-year-olds, the analysis described is strengthened.

TABLE 2

EMPLOYMENT COMPARISON BY DETAILED AGE, RACE, AND SEX: ALL WORKERS

	14-15 years	16-17 years	18-19 years	20-21 years
White Males (Number)	80	273	530	588
Covered (%)	20.0	26.7	42.6	45.7
	-	(1.29)	(4.63)	(1.04)
Hazardous (%)	22.5	40.3	48.1	47.8
	-	(3.22)	(2.12)	(-.10)
Nonwhite Males (Number)	15	31	94	115
Covered (%)	26.7	16.1	40.4	46.1
	-	(-.80)	(2.92)	(.83)
Hazardous (%)	33.3	19.4	42.6	50.4
	-	(-.99)	(2.65)	(1.13)
White Females (Number)	47	151	288	354
Covered (%)	6.4	13.9	20.1	28.5
	-	(1.64)	(1.69)	(2.50)
Hazardous (%)	14.9	10.6	18.1	20.1
		(-.75)	(2.22)	(.64)
Nonwhite Females (Number)	10	30	39	79
Covered (%)	30.0	16.7	20.5	16.4
	-	(-.83)	(.40)	(-.53)
Hazardous (%)	20.0	16.7	23.1	16.4
	-	(-.23)	(.67)	(-.84)
Total Males (Number)	95	304	624	703
Covered (%)	21.1	25.7	42.3	45.8
	-	(.94)	(5.20)	(1.28)
Hazardous (%)	24.2	38.2	47.3	48.2
	-	(2.69)	(2.65)	(.33)
Total Females (Number)	57	181	327	433
Covered	10.5	14.4	20.2	263
	-	(.81)	(1.69)	(1.99)
Hazardous (%)	15.8	11.6	18.7	20.1
	-	(-.78)	(2.21)	(.48)

Note: The test statistic in parentheses compares the figure above with figure in column to the left.
Source: See text.

employment at age eighteen. Hence, a search for a maturity effect among females must necessarily be confined to whites. Second, the data on white females between eighteen to nineteen ages and twenty to twenty-one suggest the existence of a maturity effect when the covered definition is used, but not when the hazardous definition is applied. That is, there is a statistically significant shift toward covered employment by white females between eighteen to nineteen and twenty to twenty-one, but not toward hazardous employment.

In short, it has been established that a statistically significant shift toward employment in sectors restricted by child labor laws occurs in a sample of western school dropouts between ages fourteen to eighteen and eighteen to twenty-one. For males, it can reasonably be inferred that the shift is due to the lapsing of these laws at age eighteen. Recall that the sample is composed entirely of high school dropouts. Thus, the males included in the sample did not experience the breaking point which the rest of the population encounters at approximately age 18: a high school graduation. Moreover, since there would presumably be a time lag between a person's eighteenth birthday and a resultant employment shift, the fact that a statistically significant shift is observed in the data lends support to the child labor law interpretation. Due to overlapping jurisdictions, there is no way of separating the state versus federal impact.

For females, the evidence is less clear. Among whites, the possibility that some undefined gradual maturity effect is causing the shift rather than a cessation of legal restriction cannot be dismissed. However, the suggestion that child labor laws affect males more than females is not surprising; the restricted types of employment have tended to be traditionally male. Of course, as women enter "male" occupations in greater numbers, this distinction could fade.

OVERALL EMPLOYMENT IMPACTS OF CHILD LABOR LAWS

The evidence presented so far deals only with the mix of employment between sectors, not with the overall number employed. In principle, child labor laws could affect the mix and not the magnitude. However, it is also possible that the laws complicate the job search process for teenagers, thus resulting in fewer teenagers actually finding employment. Or, it could be that the laws "crowd" teenagers into certain sectors where the resulting depression of wages either is or becomes limited by a minimum wage floor. At such a floor, the number of jobs is inherently fixed, and teenage disemployment could result. Finally, it is possible that teenagers view the jobs in the unrestricted sectors as less desirable than restricted jobs. If so, labor force participation of teenagers might be reduced.

In exploring the possibility of an overall employment impact, the sample of western school dropouts is again of use, since the individuals included could be expected to be most sensitive to regulation by child labor laws. Even with this sample, it was felt that more could be learned by using employment rather than unemployment as the dependent variable. At the younger end of the labor market, the definition of unemployment creates well-known problems relating to discouragement and marginal attachment to the labor force. Other studies have found the employment-to-population ratio to be useful at this age range since its meaning is less ambiguous.[28] Thus, the calculations described below make use of this ratio.

Younger school leavers tend to have relatively low employment-to-population ratios when compared with older school leavers. The causes of this difference probably include the tendency of younger persons to be perceived as having lower productivity, to have less job experience, and to be under less pressure to seek work due to lack of dependents or income from family sources. Thus, the difference between the employment ratios for younger individuals below age eighteen and older ones should represent an upper-limit estimate of the overall child labor law effect. The estimate can be somewhat refined by confining the older comparison group to eighteen- to nineteen-year-olds, i.e., omitting those in the sample aged twenty to twenty-one. Even so, it should still exaggerate the child labor law impact.

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[28] See U.S. Bureau of Labor Statistics, Youth Employment and Minimum Wages (Washington: Government Printing Office, 1970), p. 43.

An alternative procedure is to make an explicit adjustment for maturity in explaining employment-to-population ratios at ages below eighteen years. The most obvious adjustment is to take account of the maturity effect observed between eighteen- to nineteen-year-olds and twenty- to twenty-one-year-olds, broken down by race and sex. Differences between these older groups can then be projected backwards onto sixteen- to seventeen-year-olds and fourteen- to fifteen-year-olds on a linear basis. Such adjusted ratios, when compared with the actual figures, can be expected to represent lower-limit estimates of the effects of child labor laws, since greater changes in life style are likely to take place for dropouts between eighteen or nineteen and twenty to twenty-one years than between fourteen or fifteen and sixteen to seventeen years. In particular, a greater tendency to marry, acquire dependents, or simply be "on one's own" is likely to be found between the older age brackets than between the younger ones.[29] However, it must be recognized that a linear adjustment is extremely crude and that the resulting estimates are best viewed as suggestive rather than definitive.

Table 3 presents the results of the two calculations. Shown is the employment "deficit," the difference between actual employment and employment that would have been expected in the age range fourteen to seventeen years based on employment-to-population ratios of eighteen- to nineteen-year-olds. The lower-limit estimates include a linear adjustment for

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[29] In 1970, the year of the Census, single men under twenty years had an overall labor force participation rate of 49.0%, compared with 95.5% for married men with spouse present at the same age. Married women under twenty with spouse present had a rate of 36.0%, not far below the single rate of 39.5%. Thus, marriage tends to raise the labor force activity of males drastically, and lower it for females somewhat. The propensity to become independent at this age level is likely to outweigh the somewhat depressing effect of marriage for females. Data from U.S. President, Employment and Training Report of the President, 1977 (Washington: Government Printing Office, 1977), Table B-2.

TABLE 3

EMPLOYMENT "DEFICIT" ESTIMATES FOR 14-17 YEAR OLD DROPOUTS

	Lower-Limit Estimate		Upper-Limit Estimate	
	Estimated Employment "Deficit" 1/	"Deficit" as percent of non-employment 2/	Estimated Employment "Deficit" 1/	"Deficit" as percent of non-employment 2/
White Males	-5,200	8.3%	-13,300	21.3%
White Females	-5,900	6.2%	-11,900	12.4%
Nonwhite Males	-	-	- 4,600	15.0%
Nonwhite Females	-	-	- 1,000	4.8%
Total	-11,000	5.3%	-30,800	14.7%

1/ Each individual in sample represents 100 persons. The "deficit" is the difference between actual employment and employment which would be expected based on employment ratios of older persons. See text for details.

2/ Nonemployment consists of persons unemployed or not in the labor force.

Source: See text.

maturity; the upper-limit figures do not.[30] Taken literally, the figures suggest that 5-15% of urban school leavers aged fourteen to seventeeen years in the western area who are not employed would be employed in the absence of legal constraints. These estimates represent a range of 11,100 to 30,800 persons in the western area. Projected to the national level, the range would be on the order of 38,000 to 106,000.

It is unfortunate that the range of estimates is so wide. The authors would lean toward the lower-limit estimates as being more accurate, despite their exclusion of nonwhites. That females make up more than half of the lower-limit estimate and over 40% of the upper-limit estimate is suspicious. Nonwhite females did not seem to evidence a sectoral employment impact, but they are represented in the upper-limit deficit estimates. White females are represented in both upper- and lower-limit deficit estimates. As was noted in the previous section, evidence on the sectoral employment effect for this group was ambiguous. But it is possible that child labor laws could have a discouraging effect on total employment for females, even in the absence of a sectoral shift effect. The laws impose restrictions on employment in all sectors with regard to hours, working paper requirements, workers' compensation laws, and so on.

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[30] For the upper-limit estimates, the difference between the employment to-population ratios for eighteen to nineteen-year-olds was compared with that for fourteen to fifteen and sixteen to seventeen-year-olds. The differences were multiplied by populations in the sample at these two age ranges to estimate the employment deficit. This calculation was made by race and sex. For the lower-limit estimates the eighteen to nineteen-year-old ratios were lowered by a maturity factor to obtain the "expected" rates for sixteen to seventeen-year-olds. The derived rate was again lowered by the maturity factor to obtain the expected rate for fourteen to fifteen-year-olds. As an example, for white males the employment ratio for eighteen to nineteen-year-olds was 50.0%. This was 6.3 percentage points below the ratio for twenty to twenty-one-year-olds. Thus, the maturity factor was set at 6.3. The expected ratio was set for sixteen to seventeen-year-olds as 50.0 - 6.3 = 43.7%. The expected ratio for fourteen to fifteen-year-olds was set at 43.7 - 6.3 = 37.4%. Actual ratios for these two age ranges were, respectively, 40.9% and 26.8%. Hence, a deficit in employment is indicated. For nonwhites, the maturity-adjustment technique tended to underestimate the employment ratios, so no deficit is estimated for them.

The analysis of the overall employment effect is certainly tenuous. But it does suggest that child labor laws do have an employment-discouraging impact, at least on certain dropouts. Given the magnitudes estimated, relaxing the laws obviously will not solve the entire youth employment problem. But it does appear that costs are imposed by current policy. The next section critically examines some of the benefits that the laws are said to engender.

BENEFITS OF CHILD LABOR LAWS

Arguments for child labor legislation have usually centered around three aspects of youth employment. First, premature work was believed to endanger a child's health and safety. Second, early work was said to be a cause of delinquency, while school was held to repress delinquency. Third, it was argued that premature work would limit a child's education and the benefits derived therefrom. In particular, it was believed that premature entry into employment would lead to a lifetime of "dead-end" jobs due to insufficient education and opportunity for training. That is, a dropout's first job would be typical of what he or she could expect over a lifetime. These issues are discussed below, and some longitudinal data from the 1970 Census are offered on the issue of a lock-in effect with regard to dead end jobs.

(i.) Safety

There is little of an empirical nature that can be said on the safety issue. Contemporary child labor laws really regulate the employment of teenagers, not children. Thus, the older arguments about stunted growth no longer apply. A key issue is whether teenagers--if they worked in currently restricted areas--would have higher accident rates than adults. This question cannot be answered from standard sources of labor-market data. It might be inferred from automobile accident records that teenagers are less careful than adults. However, unless a case can be made that on-the-job accident rates would be higher, it is hard to see the justification for special arrangements for teenagers--particularly older ones--in the face of federal job-safety requirements for all workers under the Occupational Health and Safety Act. Perhaps some comfort can be taken from the finding above that the hazardous and covered sectors heavily overlap. To the extent that a special rationale for teenage safety versus adult safety can be adduced--e.g., the lifetime cost of a permanent injury is likely to be higher for a younger person with more years in the labor market than an older person--it is reassuring to find that child labor laws do in fact tend to cover relatively hazardous industries.

(ii.) Work, School, and Delinquency

Although it may seem surprising to contemporary researchers, in the early part of this century, employment was seen as a cause of delinquency, not a cure. The so-called "street trades"--shoeshine boys, newsboys, and messengers--were viewed as little more than excuses to stand around on street corners and get into trouble. A major study by the old Bureau of Labor demonstrated that delinquents were more likely to have been employed than nondelinquents, and imputed a causal relationship running from work to crime.[31] A modern analyst would be more likely to assume that work and delinquency were both negatively associated with family income in the Bureau of Labor's sample.

The assumption that school reduces delinquency has been questioned in recent literature. The actual effect appears to depend critically on the type of experience a youngster is having in school. Failure in school can be an alienating experience which increases the propensity for crime. To the extent that dropouts can make a reasonable accommodation to adult norms, while at the same time meeting some of their own aspirations, their delinquent tendencies can be reduced.[32] Improved access to employment is an obvious route to both socialization and achievement of aspirations.[33]

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[31] U.S. Senate Documents, 61st Congress, 2nd Session, Woman and Child Wage-Earners in the United States, vol. 8, "Juvenile Delinquency and its Relation to Employment" (Washington: Government Printing Office, 1911).

[32] Delbert S. Elliott and Harwin L. Voss, Delinquency and Dropout (Toronto: Lexington Books, 1974), p. 60.

(iii.) Education and the Lock-in Effect

The correlation between income and education is so well known that there is little point in commenting on it. Nor can the long-standing debate as to whether added education truly is the cause of higher income be discussed here. But one point is worth noting. The gross correlation between education and income seems to be heavily dependent on the relationship between education and occupation. Education appears to be an entry-way into better occupations--in terms of pay and other features. Once the occupational effect is removed, the variance in income explained by education is reduced. It is easy to find detailed occupational classifications in which dropouts have only minor wage disadvantage--if any--in full-time earnings relative to high school graduates.[34]

Still, it cannot be denied that on the average, dropouts fare more poorly than graduates. Even substitute forms of education do not seem to close the gap. For example, dropouts with vocational training enjoy a

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33. Some sociologists have emphasized blocked paths to achievement of aspirations as a cause of delinquency. Put simply, if legitimate paths are closed, illegitimate paths are more likely to be chosen. See Richard A. Cloward and Lloyd E. Ohlin, Delinquency and Opportunity (Glencoe, Ill.: Free Press, 1969). Economists have also pursued this framework and find evidence for it. See Belton M. Fleisher, "The Effect of Unemployment on Delinquency," Journal of Political Economy, vol. 71 (December 1963), pp. 543-53, for evidence that unemployment and delinquency are positively correlated.

34. On the basis of median earnings for white males twenty-five years to thirty-four years of age working fifty to fifty-two weeks per year, twenty-two occupational classifications can be identified in which dropouts have an earnings disadvantage of less than 3%. See U.S. Bureau of the Census, Earnings by Occupation and Education, PC(2)-8B (Washington: Government Printing Office, 1973), Table 1. Dropouts are defined as those with one to three years of high school; graduates are those with no college attainment. Occupations include police officers, cashiers, insurance sales workers, bus drivers, and bank officials.

larger wage premium relative to untrained dropouts than trained graduates do relative to untrained graduates. But untrained graduates still enjoy higher average earnings than trained dropouts.[35]

The original child labor reformers saw great perils in premature employment. And, today, fears that early entry into "dead-end" jobs would lock teenagers into such jobs during their entire careers remain an important source of support for current child labor restrictions. It is therefore important to examine the available data for evidence of a "locked-in" effect. The evidence described below does suggest that such an effect may exist. However, as will be noted at the end of this section, this finding does not imply that child labor laws are the optimum response.

To deal with the lock-in issue, a second sample was drawn from the public user sample of the 1970 Census of Population for the western area. In the 1970 Census, some respondents were asked about their current employment and their employment five years before (in 1965). Thus, it is possible to trace occupational mobility patterns across a five-year period. Since child labor laws would affect the patterns of anyone who was under eighteen years in 1965, the sample was confined to individuals at least eighteen but not more than twenty-five years of age in 1965. Again, it was hoped that the behavior of older individuals would provide some guide to the behavior that younger persons would exhibit in the absence of legal constraints. The sample was further confined to urban males with educational attainment of at least nine, but not more than

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35. A twenty-five to thirty-four-year-old male dropout with vocational training had median earnings in 1969 which were 17% higher than a dropout without training. A high school graduate with no college attainment with training had only a 7% premium above an untrained graduate. But a trained dropout earned 7% less than an untrained graduate. See U.S. Bureau of the Census, Vocational Training, PC(2)-5C (Washington: Government Printing Office, 1973), Table 10.

twelve years who had been employed both in 1965 and 1970. A total of 5,434 individuals were included, representing a western population of 543,400.

For purposes of this study, occupations were ranked by average male full-time earnings at all age levels. The all-age average appeared to be a better guide to lifetime earnings than the earnings of younger workers. A total of 102 Census occupations was used to classify employment. A move to a lower-ranked occupation was considered a deterioration. Since no two occupations had exactly the same earnings, no change in status was synonymous with no change in occupation.

The lock-in effect would be benign if it applied only to high wage occupations. Thus, concern centers on the possibility of being locked into low wage positions. Obviously, the cutoffs for defining low and high wage jobs are inherently arbitrary. As a matter of convenience, the sample was divided roughly into thirds on the basis of a ranking of individuals by their occupation's average wages. The bottom third fell in occupations with average earnings below $6,371, while the top third was in to occupations with average above $7,795. These classifications were then used to categorize the initial type of job of each individual.

Each person in the sample experienced one of two basic possibilities during 1965-1970. Either he remained in his 1965 occupation or he moved to one of the other 101 occupations. If an individual moved, the shift is described as an improvement on Table 4 if the move was to a higher wage occupation. Thus, a move from an occupation with a wage of $5,000 to one with a wage of $5,001 was classified as an improvement although both are low-wage occupations. Of course, a move from a $5,000 occupation to an $8,000 occupation--involving a jump from a low-wage to a high-wage occupation--would also be classified as an improvement. Similarly, a deterioration is recorded on Table 4 whether the decline was large enough to drop from high to middle wage, middle to low wage, or simply involved a dollar drop within the high, middle, or low wage classes.

There are few surprises regarding the qualitative aspects of the results. It would be expected that there would be more upward mobility from low wage jobs than from high wage jobs, and vice verse for downward mo-

TABLE 4

MALE EDUCATION AND OCCUPATIONAL MOBILITY, 1965 - 1970

Change in Status, 1965-1970	High School Dropouts				High School Graduates			
	High Wage	Middle Wage	Low Wage	All	High Wage	Middle Wage	Low Wage	All
Improvement	9.0%	35.4%	54.0%	36.5%	13.0%	37.7%	64.6%	37.7%
No Change	51.9	41.0	37.8	42.3	54.5	41.7	29.2	43.1
Deterioration	39.1	23.6	8.2	21.2	32.5	20.6	6.2	20.2
Total	100.0	100.0	100.00	100.0	100.0	100.0	100.0	100.0
Number	432	669	717	1,818	1,213	1,292	1,111	3,616

Note: See text for source of data and definitions.

bility. This is partly because it is hard to go down from the bottom or up from the top, and partly because of the nature of the tabulation. If it is assumed that there is a random error present in occupational placement at any point in time, at a later date individuals will be found to move toward their "proper" occupations, where "proper" is defined in terms of characteristics affecting productivity and employability.

Since absolute dollar definitions are being used for defining low wage and high wage, and since dropouts are known to have lower average wages than graduates, the comparison of mobility across the two groups also does not produce qualitatively surprising results. It would be expected that with the same definitions, fewer dropouts than graduates would show improvement in occupational status from low wage occupations and more dropouts than graduates would show downward mobility from high wage occupations. This is because graduates will have a greater tendency to "belong" in the high wage occupations than dropouts, while the reverse will be true for low-wage occupations.

Table 4 confirms these various expectations. What is surprising is that both graduates and dropouts show a high rate of occupational immobility--no change in status over the period--despite the relative youthfulness of the sample.[36] Apparently, the high degree of mobility which is often associated with youth relates more to changes of employer than changes of occupation. The table shows that 42.3% of the dropouts and 42.1% of the graduates experienced no change in occupation during the five-year period.

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[36] According to national data for males of all age groups, the overall occupational immobility rate was about 60%. Thus, the immobility figures on Table 4 for the younger groups are significantly lower, as expected. See Dixie Sommers and Alan Eck, "Occupational Mobility in the American Labor Force," Monthly Labor Review, vol. 100 (January 1977), p. 9. Note that the figures in the Sommers and Eck paper must be adjusted to exclude individuals not working or who died during 1965-1970 to obtain estimates comparable to those discussed in the text.

These rates probably understate the mobility rates that would apply to teenagers below age eighteen in the absence of legal constraints, since even within the sample, the younger workers are more mobile than the older.[37] But the fears of child labor reformers of a lock-in effect do find some confirmation on the table.

If it is granted that the fears were well-founded, it is still unclear that the policies chosen in response were optimal. These policies both require full-time attendance at school until some minimum age (usually fourteen to sixteen) and limit the job opportunities available to dropouts under age eighteen. Both sets of policies provide incentives to complete high school. Assume for the moment that the laws have the desired effect of keeping teenagers in school who would otherwise drop out. At best, the laws would prevent the dropping out of students on the margin of the dropout decision. This marginal effect would be achieved by imposing costs on those who drop out despite the reverse incentives. Only about three-fourths of a high school graduating class finish their diplomas "on time." So the minority who bear costs is not an insignificant fraction of the nation's teenagers.[38]

IMPLICATIONS

Despite the inherent difficulties in exploring the effects and underlying rationale of statutes as diverse as child labor laws, this study has demonstrated that statistical investigations are possible. However, it has also demonstrated the limitations of such explorations, when confined to Census or similar data sources. The effects of the laws are detectable in Census data, but it would be difficult to carry out alternative policy simulations based on the available statistics.

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[37] At ages in 1970 of twenty-three to twenty-four, twenty-five to twenty-six, twenty-seven to twenty-eight, and twenty-nine to thirty years, the proportions of dropouts experiencing no mobility were, respectively, 33.5%, 37.5%, 43.9%, and 50.1%. For graduates the figures were 32.3%, 37.6%, 42.9% and 51.2%. The proportions of dropouts experiencing upward mobility were 43.0%, 40.6%, 35.3%, and 30.2%. For graduates, these proportions were 44.1%, 40.3%, 38.3%, and 31.0%. Thus, immobility rises with age, and upward mobility declines.

[38] About 74% of the class which entered the fifth grade in 1966 graduated "on time" in 1974. See U.S. Bureau of the Census, Statistical Abstract of the United States 1976 (Washington: Government Printing Office, 1976), p. 140.

Further information on the effects of child labor laws could best be determined through experimental techniques. It would be interesting to relax the laws in particular areas and observe the results. Unfortunately, the current arrangement whereby the applicable law is always the stricter of the federal or state statutes makes such experimentation difficult. A step toward experimentation and ultimate reform would be repeal of that portion of Section 18(a) of the FLSA dealing with child labor.[39] Such repeal would put child labor policy for all employment under the FLSA exclusively in federal hands. Thereafter, changes in policy would not require the coordination of diverse state laws.

Finally, researchers in the field of youth employment problems ought not to neglect the impact of child labor and related laws, despite the difficulty in quantification. It does appear that the impact is to push teenage employment--at least among dropouts--into sectors whose virtues in terms of long-term job prospects are questionable. In addition, they may well tend to discourage employment of some teenagers altogether.

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[39] Section 18(a) permits the states to override the FLSA's child labor provisions with stricter regulations.

YOUTH LABOR MARKETS AND THE MILITARY

By: Richard V.L. Cooper

ABSTRACT

This paper outlines the effects that the military has on youth labor force participation and the youth job market, and concludes that the military's demand for labor is an important determinant of both the size and composition of the youth labor force. Changes in the military's demand for labor can have significant effects on the youth labor force, and other variables affecting American youth. The military also exerts a major influence on the supply-side behavior of the youth labor force. Of most significance for the civilian labor market is the human capital that former service members bring back when they rejoin the civilian work force. Thus youth unemployment rates ought to be defined in terms of the total labor force, not just in terms of the civilian labor force. Developing such appropriate measures of youth unemployment could lead to more informed policy decisions.

INTRODUCTION

Youth unemployment has become an increasingly important problem in recent years. Youth unemployment rates have averaged nearly 20% since 1974, and have run as high as 40% in some segments of the youth labor market (e.g., black teenagers). Developing and implementing solutions to the youth unemployment problem has therefore become a major concern throughout the policymaking community.

Before the causes of and possible solutions to the youth unemployment problem can be identified, however, it is both important and necessary to develop a better understanding of the youth labor market--specifically, youth labor force participation and the youth job market. Because the military plays such an important role in the youth labor market, the purpose of this paper is to highlight some of the effects that the military has on youth labor force participation and youth job market. As such, this paper is intended simply to provide an overview for the labor economist not too familiar with the military. That is, it is not intended to break new ground--either theoretically or empirically--but rather to put into a common framework many of the issues addressed separately by both labor economists and military manpower analysts.

The next section of this paper examines briefly the effect of the military's demand for labor on the youth job market. The third section then turns to focus on the role of the military in youth labor supply and human capital development. The last section examines the implications of the military's role in the youth labor market for the development of meaningful labor statistics.

THE MILITARY'S DEMAND FOR LABOR AND THE YOUTH JOB MARKET

Because the military is such a major claimant of the nation's resources, and of youth labor in particular, it is useful to begin by discussing the military's demand for labor. Whether the military enters the youth labor market through traditional market allocating mechanisms (e.g., wages and other inducements to join) or through nonmarket allocating mechanisms (e.g., the draft), the military demand for labor can have important effects on the size and composition of the youth labor force. That is, the youth labor force is shaped in significant ways by both the military's aggregate demand for labor and the more specific policies that govern the use of military personnel during their service careers.

The discussion below therefore centers on the demand for military labor. If, as is not the case, the military's demand for labor made up, say, 0.1 percent of the labor force, then the subject might be interesting, but of only academic interest. If, as is actually the case, the military makes up a significant share of the youth labor force--in the neighborhood of 10% to 20%--then this question of demand becomes of particular policy importance. To the extent that labor statistics are not designed to measure the military's effect on either the size or composition of the youth labor force, these statistics are accordingly less useful for policy purposes.

Recognizing the importance of the demand side of the equation, the discussion below focuses first on the overall size of the military, and then turns to the impact of the military on the youth labor market in particular.

Size of the Military

With its four to five million employees, depending on who is counted, and its approximately $400 billion worth of land and capital in fiscal 1976, the Department of Defense is the single largest employer of resources in the nation. The military's capital stock consists not only of such obviously military items as tanks, ships, and aircraft, but also the more mundane items such as forklift trucks, buildings, desks and file drawers, and so forth.

The military's labor force includes about 2.1 million active duty uniformed personnel, about 1 million reservists (i.e., the so-called "weekend warriors"), 1 million direct-hire civilian personnel (of which about 600,000 are in white collar occupations, while the remaining 400,000 are in blue collar jobs), about 100,000 indirect--hire civilian personnel, 500,000 contract-hire civilian personnel, and about 250,000 nonappropriated fund employees.[1]

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1. "Direct-hire" civilians are those civilian employees maintained directly on the defense payroll. "Indirect-hires" are those foreign and nationals working on U.S. installations abroad who are formally employed by the host nation, but whose costs are actually paid by the U.S. military through a reimbursement program. "Contract hires" are those individuals who, through actually employed by civilian firms, perform contract services for the military such as aircraft maintenance, janitorial services, and kitchen duties, among others. (Contract hires do not, however, include those civilian workers engaged in the production of equipment and construction ultimately purchased by the military.) "Nonappropriated fund" civilian personnel are individuals who are paid out of funds not budgeted out of Congressionally appropriated funds. These are largely employees of military commissaries and post exchanges who are paid out of the funds generated by the sale of goods and services.

For almost all of the civilian personnel, however, there is little difference between their employer and regular civilian employers.[2] What is unique about the military, though, are military personnel. For the most part, the discussion in this paper will focus on active duty personnel, but it is important to recognize that the nearly 1 million reservists represent an important type of second job holding, and need to be examined accordingly.[3]

Even when we focus only on military personnel, Figure 1 makes it clear that military personnel comprise a significant portion of the U.S. male labor force. In the immediate post-World War II period, male military personnel made up about 3.5% of the total male work force, but jumped to nearly 7.5% during the Korean conflict. Between the Korean and Vietnam wars, male military personnel made up between 5% and 6% of the U.S. male labor force. After jumping up to more than 6.5% during the Vietnam war, the proportion of the U.S. male work force in the military has declined to between 3.5% and 4% during the past several years. Thus, although not a dominant factor in the male work force, the military has nonetheless maintained a significant share of the labor force in its ranks during the entire post-World War II period.

The Youth Labor Market

Because the military maintains a "closed" personnel system, the foregoing understates in an important way the impact of the military

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[2] There are some "dual-hatted" civilians, primarily maintenance technicians, who though employed as civilians, are also members of the reserve forces.

[3] For a discussion of moonlighting and the reserves, see Bernard D. Rostker and Robert Shishko, Air Reserve Personnel Study: Volume II. The Air Reserve Forces and the Economics of Secondary Labor Market Participation (Santa Monica, Ca.: The Rand Corporation, 1973); and Robert Shishko and Bernard D. Rostker, "The Economics of Multiple Job Holding," American Economic Review, vol. 66 (June 1976).

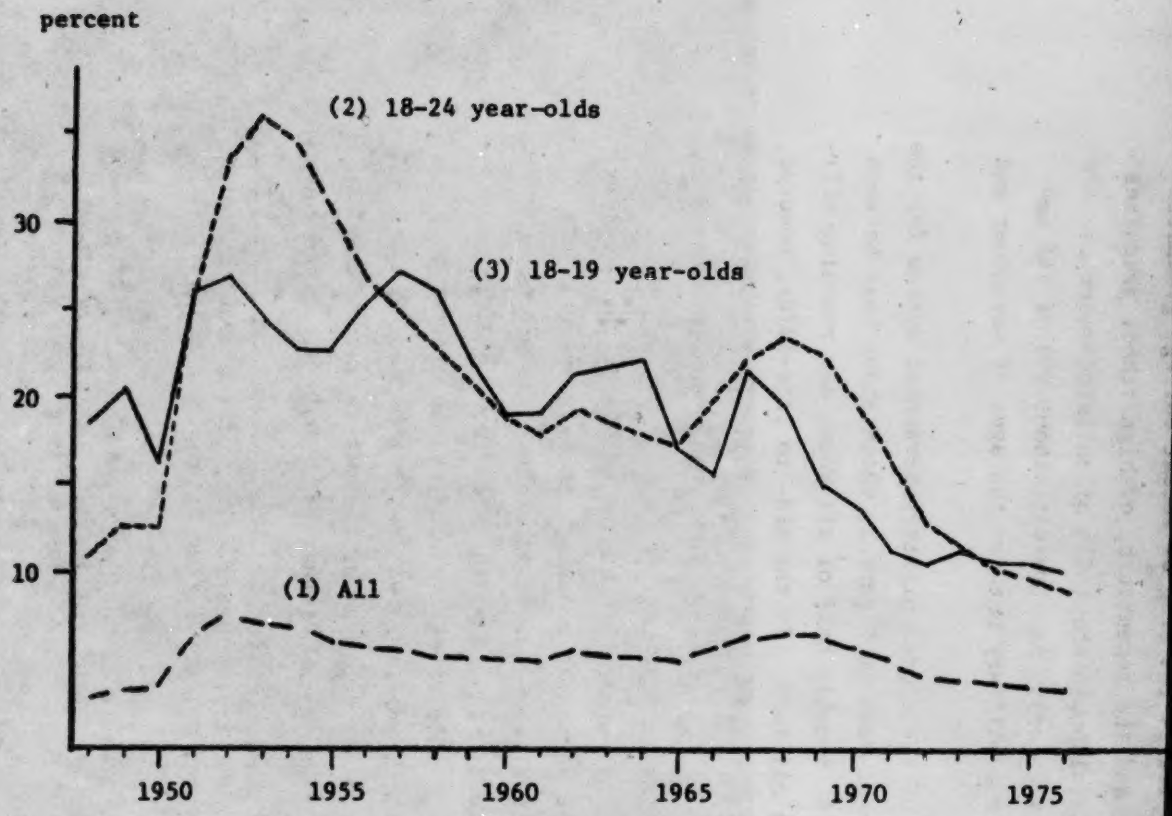

Fig. 1 -- Number of Male Military Personnel Relative to the Relevant Male Labor Force (percent): (1) All, (2) 18-24 year-olds and (3) 18-19 year-olds.

on the youth labor market. That is, the military maintains an "up through the ranks" personnel system, with little lateral entry. This means, then, that the military's major influence on labor markets is at the entry point, typically the crop of recent college graduates for the officer corps, and the recent crop of high school graduates for the enlisted ranks (although about 35% of enlisted recruits are non-high school graduates). As a result, about 90% of all enlisted personnel join the military between the ages of seventeen and twenty years old.[4]

The implications of the closed military personnel system for the youth labor market can be seen in Figure 2, which shows that between the 1950s and mid-1960s roughly half of all young men reaching military age served in the military. By the mid- to late-1970s, however, declining military force sizes and a substantially larger youth cohort meant that only about one out of every five young men would serve in the military at some time during his life.[5]

A somewhat different perspective on the effect of the military's demand for labor on the youth labor market can be seen in Figure 1 shown earlier. Specifically, Figure 1 also shows the proportions of the eighteen- to nineteen-year-old youth labor force and eighteen- to twenty-four-year-old labor force employed by the military. According to either of these measures, we see that between 20% and 35% of the youth labor force was employed by the military from the time of the Korean buildup through the Vietnam war. Only since the end of

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4. Because of the "oldest first" draft policy of the 1950s and 1960s, significant numbers of personnel then entered the military in their mid-twenties.

5. In fact, these demographic trends, more than anything else, were responsible for the demise of the draft. That is, the growing population base not only created enormous inequities (since a small few would have to bear the "burden" of military service, while the vast majority could escape serving), but also made it possible to attract sufficient numbers of volunteers without the threat of a draft.

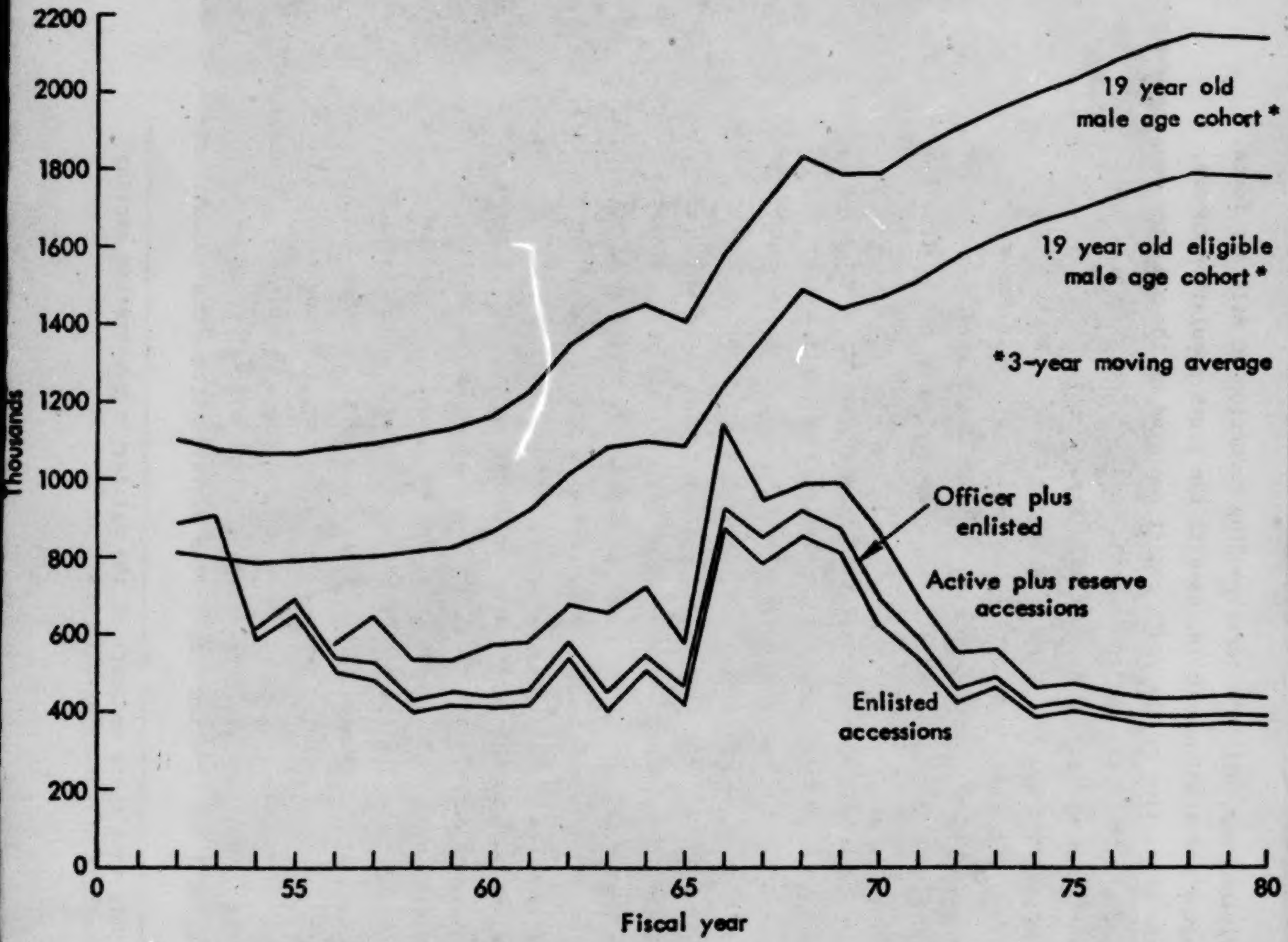

Fig. 2 — Military manpower procurement and population size

the Vietnam war, with the corresponding reduction in military force strengths and simultaneous increase in the youth population cohort, has the proportion of the youth cohort employed by the military dropped significantly--at its current level, to about 10%.[6] Thus, no matter how we measure it, the military is an important, and in some cases the dominant, player in the youth labor market. Accordingly, policy changes affecting the numbers of young men entering the military--and/or the nature of their military service--can have a significant impact on the size and composition of the youth labor force.

In addition to the quantitative side of demand, there is an important qualitative aspect to the military's participation in the youth labor market. Specifically, the military uses a variety of criteria to screen potential applicants for enlistment. The individual must first take a mental aptitude test, the results of which are used to clasify the individual into one of five so-called mental categories (with Mental Category I representing the top 7% of the population and Category V representing the bottom 10%). Those classified into Mental Category V are legally ineligible to serve. Others ineligible include those who fail to pass the medical examination, as well as those who fail to meet certain other criteria such as a check of police records, talks with high school counselors, and so forth. Overall, about 40 out of every 100 applicants for enlistment are rejected outright. Moreover, of the remainder, the military only allows some Mental Category IV (i.e., below average) and high school dropouts to join.

The end result of supply behavior (on the part of the individual) and this demand behavior (on the part of the military) can be seen in Tables 1 and 2, which compare the mental aptitude and educational

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[6] Note that these measures of the military's penetration exclude members of the reserve forces.

TABLE 1.

DISTRIBUTION OF ENLISTED ACCESSIONS AND THE GENERAL 18 TO 21 YEAR-OLD MALE POPULATION BY MENTAL CATEGORY (percent)

			US Population: Male 18-21 Year-Olds			
			All		Non-College	
Mental Category	Draft	AVF	All	Non-V	All	Non-V
I	6	3	7	8	2	2
II	31	32	28	31	22	25
III	43	57	34	38	39	45
IV	19	8	21	23	24	28
V	--	--	10	--	13	--
TOTAL	100	100	100	100	100	100

Source: Office, Assistant Secretary of Defense (Manpower and Reserve Affairs)

TABLE 2.

EDUCATIONAL ATTAINMENT OF ENLISTED ACCESSIONS AND THE U.S. MALE POPULATION
(percent)

Maximum Educational Attainment	Enlisted Accessions[a]		U.S. Male Population[b]			
	Draft	AVF	All 18-22	Not in School 18-24		Blue Collar 25-44
					18-21	
College Grad.	3	1	8	7	1	3
Some College	13	5	26	13	12	12
High School Grad.	54	59	41	46	49	48
Some High School	26	35	19	22	27	21
Elementary	4	1	6	11	12	16

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[a] Source: Office, Assistant Secretary of Defense (Manpower and Reserve Affairs)

[b] Source: U.S. Bureau of the Census and U.S. Bureau of Labor Statistics.

[c] Includes GEDs--i.e., those who have passed a general high school equivalency test, but who do not possess a high school diploma.

attainment, respectively, of military recruits with their civilian counterparts.[7] In general, these comparisons show that the military takes in a reasonably representative sample of the nation's youth. In terms of the nation's policy toward youth and youth unemployment Tables 1 and 2 establish the important point that the military does not draw narrowly from any one segment of society;[8] rather, the military plays a significant role in almost all segments of the male youth labor force.

Finally, the discussion of the military's participation in the youth labor market would not be complete without giving consideration to two special issues: the use of women in the military and the racial composition of new recruits. Although participation of women in the armed forces was limited by law to no more than 2% of military personnel strengths prior to 1972, these restrictions are now largely gone (the only major remaining restriction being that women are not to be employed in "combat," though the defination of combat is in the process of change). As a result, participation of women in the armed forces has increased significantly over the past five years, up to more than 5% of total military personnel today--that is, currently there are about 110,000 women in the military. Further increases are planned, such that women in the military should number between 150,000 and 200,000 by the 1980s. Moreover, women are being used in a variety of "nontraditional" jobs. That is, whereas women were once limited mostly to certain medical and administrative occupations, today they are entering a variety of occupational areas such as truck driver, aircraft mechanic and, in some cases, combat support. Thus, the military, which once only had a minor role in the female labor market, is now taking a much more active role and will continue to do so in the future.

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[7] That is, theory tells us that supply behavior should lead to fewer (than a random sample of) very high mental aptitude individuals joining the enlisted ranks, since the enlisted ranks correspond more or less with blue collar occupations and since these very high mental aptitude youth are more likely to attend college. On the demand side, the military limits (and in some cases excludes outright) the numbers of below average mental aptitude and non-high school graduates, so the bottom end of the mental aptitude and educational attainment spectra will also tend to be "under-represented." Thus, the enlisted ranks of the military would be expected to have proportionately fewer members from the very top and bottom ends of the mental aptitude spectrum or from those with post-secondary and no secondary education. (Commissioned officers, on the other hand, are drawn exclusively from the college graduate population.) Note, however, from Tables 1 and 2 that enlisted recruits are quite representative of the upper end of the noncollege civilian population--i.e., those individuals corresponding most closely with enlisted occupations.

[8] Other work by the author shows that the military draws a reasonably representative sample of American youth in other dimensions as well, such as region of origin and socio-economic background. See Richard V.L. Cooper, Military Manpower and the All-Volunteer Force (Santa Monica, Ca.: The Rand Corporation, 1977).

For a variety of reasons, mostly economic in nature, the military enjoys an even more substantial participation in the black youth labor market than it does for the youth labor market as a whole. Unlike some areas of the civilian labor market, where blacks often face inferior economic opportunities, the military does not discriminate according to race (and this has been perceived by large numbers of black youth). As a result, blacks have historically served in larger numbers relative to their population than have nonblacks. Indeed, whereas the military employs about 10% of today's total eighteen- to twenty-four-year-old male labor force, it employs nearly 20% of the black male eighteen- to twenty-four-year-old labor force.[9] Increasing participation of black college graduates in the officer corps is perhaps even more impressive. Whereas blacks made up only 1% of all new officers in 1960, today they make up about 7% of the total.

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[9] The proportion of new recruits that are black has in fact increased significantly over the past ten to fifteen years, from about 8% in 1960 to some 16-18% today. The primary reason for this increase is the increasing proportion of black youth found eligible for military service. During the mid-1950s, only about 12% of black youth were classified into Mental Categories I-III (i.e., the upper 70% of the mental aptitude spectrum)--that is, the so-called "prime" manpower pool. Today, between 45% and 50% are so classified. As a result, blacks have increased their share of this prime manpower group from 2.9% in the mid-1950s to more than 7% today.

Thus, not only is the military an important factor in the youth labor market in total, it is of increasing importance for certain segments of that market, especially minorities and women. Stated more simply the above discussion has shown that the military is an important factor in the demand side of the youth labor force.

Secular, Cyclical, and Seasonal Variations in the Military's Demand for Labor

Because the military plays such an important role in the youth labor market, variations in the military's demand for labor can have an important effect on both the size of the civilian youth labor force and on the employment and unemployment prospects for these youths. Three kinds of variations in the military's demand deserve attention: secular, cyclical, and seasonal.

As can be seen in Figures 1 and 2 shown earlier, there has been a secular trend toward smaller military forces since the mid-1950s (excepting of course for the Vietnam War). Looking ahead, however, we expect military forces to stay at approximately their current levels--about 2.1 million members in the active duty forces. In other words, barring major unforeseen circumstances, such as another war, we should not expect to see major secular trends in the size of military forces, and hence in the numbers of youth employed by the military.

In the case of cyclical variations, the individual military services seem to exhibit some cyclical recruiting patterns (e.g., the Navy seems to still have a four-year recruiting cycle, which is a result of the Vietnam buildup and drawdown). For the Department of Defense as a whole, however, there is not much cyclical variation in the demand for labor, simply because the cycles of the individual services tend to be offsetting. Thus, cyclical variations in the demand for labor on the part of the military would not seem to pose significant problems for the youth labor force.

Finally, there are significant seasonal variations in the military's demand for labor, but this seasonal variation is a supply-side not a demand-side phenomenon. That is, the military has adapted itself to the seasonal variations in recruits seeking to join the military. Specifically, the military recruits particularly large numbers in the summer and fall months--i.e., following June high school graduation. Again, seasonal variations in the military's demand for labor would not appear to pose significant problems for the youth labor force.[10]

In conclusion, there have been secular and cyclical fluctuations historically in the military's demand for labor, but these have been a result of declining forces sizes and the Korean and Vietnam conflicts. Barring another major buildup in force sizes, we would not expect much further secular or cyclical variation in the size of military forces, or in the military's demand for youth labor. Although there is in fact considerable seasonal variation in the military's demand for labor, this works with, rather than against, youth labor force participation, since the military is merely responding to the supply of new recruits enter the job market.

MILITARY SERVICE AND YOUTH LABOR SUPPLY

Examination of the supply side of youth participation in the military is important for two main reasons. First, the continuity between military and civilian work experience is much greater than is sometimes perceived. That is, there are sufficient similarities between military and civilian employment that movement between the two sectors is frequently quite easy. Every year, hundreds of thousands of young men leave the civilian youth labor force to join the military, just as hundreds of thousands of young men leave the military to rejoin the civilian youth labor market. This means that modest variations in the variables affecting the desirability of military and civilian employment can have a significant effect on the flow between military and civil youth labor markets.

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[10] During the draft, there was far less seasonal variation in the demand for labor, since the military could simply draft to make up for recruiting shortfalls in the "off" recruiting months. This probably caused greater disruption to the youth labor force than the current seasonal variations which are in response to the supply of individuals entering the youth job market.

Second, military employment provides the individual with the opportunity to accumulate significant amounts of human capital. This human capital, in turn, can frequently be used to obtain subsequent civilian employment. As a result, the military can affect not only the size of the civilian youth labor force, but also qualitative aspects of that manpower pool, such as the skill and education mix of members of the youth labor force.

The following discussion examines these supply-side aspects of military employment, focusing first on the decision to join the military, then on the military work experience, and, finally, on the decision to stay or leave the military.

The Decision to Join the Military

When an individual joins the military, he or she leaves the civilian work force. Because of this, it is important to examine various aspects of the decision to join, as discussed below.

Factors Affecting the Enlistment Decision

Models of enlistment supply have been the subject of a considerable amount of research for at least ten years. Among those studying the enlistment decision are economists, sociologists, and psychologists. The economists tend to formulate the enlistment decision as a model of occupational choice, where the individual presumably weighs the various advantages and disadvantages of alternative employment options and chooses the one that maximizes his or her utility. Although these are certainly not the only models used to explore the enlistment decision process, they are probably better developed than those of the other disciplines.[11]

Generally speaking, models of the enlistment decision, irrespective of their disciplinary origin, have highlighted a number of factors as critical in the individual's decision about whether or not to enlist in the military. Important among these factors are certain economic variables, including the wage rate offered by the military, the potential earnings from civilian employment, and the chances for obtaining civilian employment (as reflected by the unemployment rate). Economic factors are certainly not the only variables to affect the individual's decision to enlist, as surveys consistently show a number of other factors to be as important, such as the training and job experience offered by the military, the chance to travel and "see the world," patriotism, and a host of other factors too numerous to mention.

The point is simply that the enlistment decision is shaped by many different things, so that modest changes in one or more of these can significantly affect both the number and types of individuals who join the military. To illustrate, a variety of economic supply studies conducted over the past ten to twelve years show that if the military pays a wage approximating that earned by comparably aged and educated civilian workers, the military can attract between

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[11] As various data collection techniques such as surveys have improved in recent years, so have the enlistment decision models of the other academic disciplines, especially sociology and psychology.

15% and 20% of a given youth cohort into military service.[12] Moreover, most of these studies show that the elasticity of supply with respect to pay is somewhere in the neighborhood of 1.0 (Actually, estimates of the enlistment supply elasticity range from about 0.5 to 2.0, with 1.0 representing probably the best guess.) That is, a 10% increase in the military wage rate will yield approximately a 10% increase in the supply of labor to the military. Conversely, as the chances for obtaining civilian employment decrease, the supply of labor to the military also increases. Again, most studies done over the past several years show unemployment elasticities of between 0.1 and 0.4. In other words, a 10% increase in the unemployment rate will lead to a 1% to 4% increase in enlistment supply.

The implication of these results is clear. Specifically, as the military makes its employment offer more (less) attractive relative to civilian employment opportunities, the military can expect to get more (fewer) individuals to join. In other words, there is not a well defined line separating military and civilian employment. This means that in studying the factors affecting the youth labor force and youth unemployment, it is important to recognize the role the military plays in trying to attract young men and women.

Military Earnings

As indicated above, previous studies have shown the importance of military pay for enlistment supply. In this regard, Figure 3

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12. See for example, Dorothy Amey, et al., Supply Estimation of Enlistees to the Military (McLean, Va.: General Research Corporation, 1976); Pre-AVF Studies with Volunteer Enlistments," in Richard V.L. Cooper, ed., Defense Manpower Policy (Santa Monica, Ca.: The Rand Corporation, forthcoming); Stuart H. Altman and Alan E. Fechter, "The Supply of Military Personnel in the Absence of a Draft," American Economic Review, vol. 57 (May 1967); and Harry J. Gilman, "The Supply of Volunteers to the Military Services," in Studies Prepared for the President's Commission on an All-Volunteer Armed Force (Washington, D.C.: Government Printing Office, 1970).

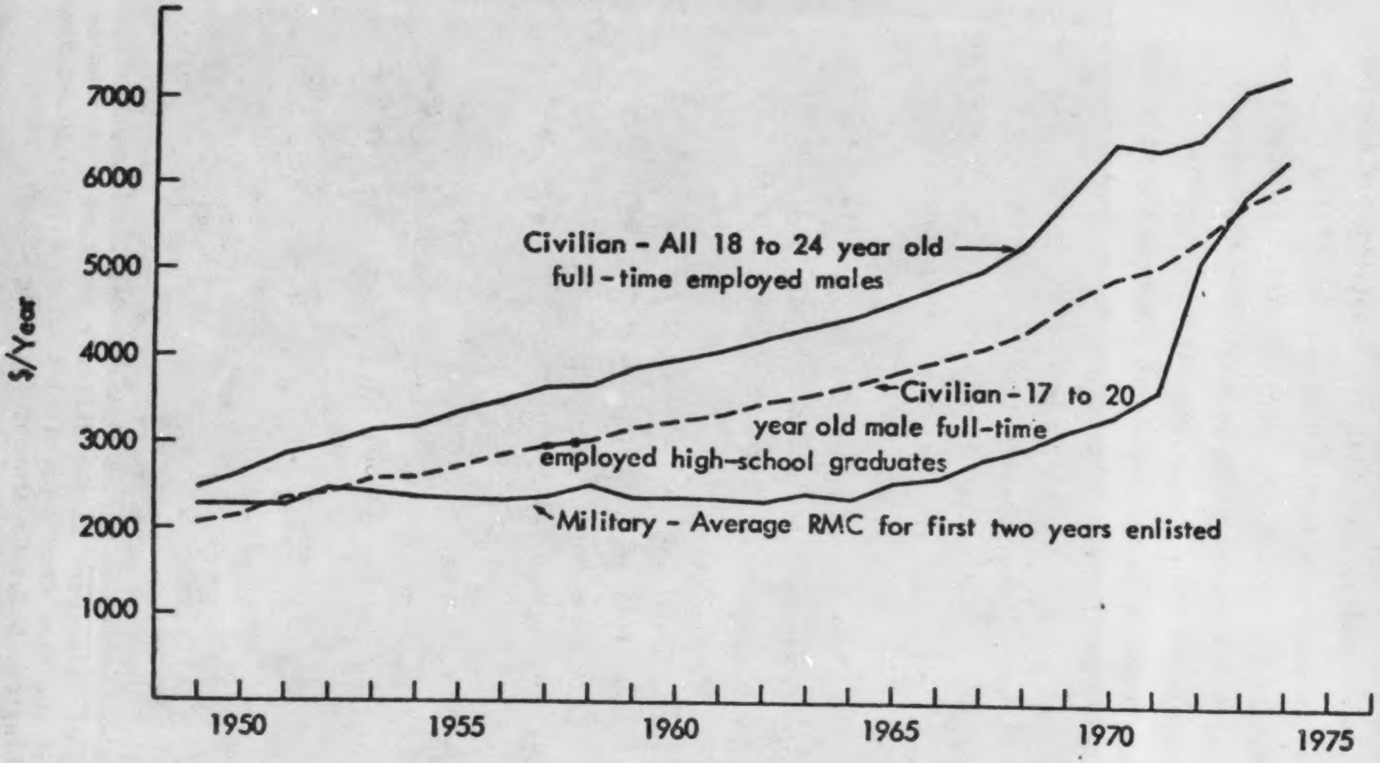

Fig. 3 — Annual Military and Civilian Wages

Source: See text.

shows that military pay for new recruits has changed significantly during the course of the past ten years. Specifically, with the pressure of the draft, there was no "need" to pay military recruits a market wage. Indeed, as shown in Figure 3, the wages earned by military recruits remained virtually unchanged from 1952 through 1965, and from 1965 to 1971 they received only cost-of-living pay increases. Although these wages were sufficient to attract some "true volunteers," the draft or threat of the draft provided the vast majority of new recruits.[13]

Given the demographic trends shown earlier in Figure 2, it is clear how inequitable the selective service draft had become by the late 1960s. That is, only about one-fifth of the male military-aged population would have to bear the burden of serving, while the other four-fifths could find more lucrative civilian employment. The President's Commission on an All-Volunteer Armed Force recommended that this pay discrimination be eliminated. Congress concurred and raised recruit pay to a level earned by comparably aged and educated civilian workers (basically seventeen- to twenty-year-old high school graduates), the results of which can be seen in Figure 3. The effect of this pay raise was substantial. In fact, by 1975 the military had doubled the number of true volunteers joining relative to ten years earlier.

Again, the more general point to be drawn from this is that as the military changes one or more aspects of its employment offer, there will be a significant impact on the size and composition of the civilian youth labor force.

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13. During the 1950s and 1960s, about one-third of new recruits were"true volunteers"; about one-third were "draft-motivated" volunteers (i.e., individuals who volunteered in order to avoid being drafted but who would not have enlisted in the absence of a draft); and about one-third were drafted outright.

Pre-Service Employment and the Military

It is important to recognize that many individuals joining the military come not only from the ranks of the unemployed, but directly from previous civilian employment. A recent survey by Gay, for example, shows that about 20% of the eighteen-year-old enlistees in 1974 were unemployed prior to enlisting, but that about 35% were employed part time before enlisting and 45% were employed full time.[14] For those individuals employed prior to joining the military, there were obviously aspects of the military employment offer that they found superior to their then present civilian employment. In other words, the military does often compete directly with civilian employers for young recruits. This is not altogether surprising, though, given the kinds of work that young members of the labor force often find available. That is, not only is it harder for these young members of the labor force to find work, as reflected by high youth unemployment rates, but the kinds of jobs they can obtain frequently offer less in the way of wages, challenging work, chance to accumulate human capital, and so forth, than the military can offer. Yet, it is precisely for these reasons that many young men and women seek military employment as their first or second job after leaving school.

The implication of this is clear. Although there are many young men and women who would not enter the military under any circumstances, there is a sufficiently large portion of the youth labor force that, given the proper set of inducements, would (and in fact does) join the military. Thus, analysis of the youth labor market--both supply and demand--must take the military into account.

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[14] Source: unpublished tabulations provided by Robert M. Gay, The Rand Corporation, 1976.

The Military Work Experience

Once in the military, the individual is obligated for a period of service, generally running three to six years. That is, unlike civilian employers, the military can obligate for a period of service.[15] The discussion here looks briefly at the nature of this military work experience, including the occupations that new recruits are likely to get, as well as the accumulation of human capital by military personnel.

Occupational Mix of the Military

Although it is most common to view the military in terms of the combat arms component, it is important to recognize that the military consists of a wide range of occupations, not at all unlike what one finds in the civilian sector. In fact, Table 3 shows that the combat arms occupations make up only about 10% of the entire enlisted work force. The other 90% is made up by such diverse occupations as aircraft mechanics, medical and dental specialists, radar repairers, radio operators, carpenters and plumbers, military police, intelligence experts, vehicle mechanics, and a host of other specific occupations. In other words, young men and women joining the military find virtually as many different types and kinds of jobs in the service as they could in the outside civilian world.

Moreover, as part of the move to the all-volunteer force, it is common to find young men and women joing the military to work specifically in a particular job or at a particular military installation, or with a particular military unit. Once frequent stories about the individual who was an engineer but forced to be an Army cook, or the cook who was forced to become a vehicle mechanic, and

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15. There are ways, however, for the individual to get out of his or her contractual obligation.

TABLE 3.

DISTRIBUTION OF THE FORCE BY OCCUPATIONAL AREA: FY74[a]

Officer		Enlisted	
Occupation	Percent	Occupation	Percent
Executives	1.6	Combat Arms	12.3
Tactical Operations	40.8	Electronics	10.4
Intelligence	3.2	Comm/Intelligence	6.7
Engineer/Maintenance	15.6	Other Specialists	1.9
Scientists/Professionals	6.6	Elec/Mechanics	21.6
Medical/Dental	9.4	Medical/Dental	4.6
Administrators	12.8	Admin/Clerks	18.4
Supply	6.1	Service Supply	11.0
Other[b]	3.8	Craftsmen	4.6
		Other[b]	8.6

[a] Based on "primary" occupation designators.

[b] Training, Miscellaneous, and Other.

Source: Data were furnished by the Office, Assistant Secretary of Defense (Manpower and Reserve Affairs) so forth, are not only not common now, they are rare. The military services have made significant strides in better matching individuals' tastes and aptitudes with actual job assignments.[16]

The foregoing is not meant as an advertisement for military service, but rather as an indication of the very wide range of occupational specialties that young men and women joining the service can and do engage in, and as evidence that many of these young men and women are in these occupations as a result of their own choice. The implications for the civilian youth labor force are obvious, in that individuals leaving the military bring with them a set of skills acquired during their military service. To the extent that young men and women are engaged in jobs that are found in the civil sector and than these are the types of jobs in which these individuals would like to continue working, there is the important issue of the accumulation of human capital, as discussed below.

The Accumulation of Human Capital

As indicated above, military work experience can be characterized in economic terms as the accumulated human capital. Some of this human capital will be of a very general variety, such as the maturity that goes along with the individual's early job choices. Parts of this human capital are also very specific--in fact, they are specific entirely to the military. Examples of this would be the use of mortars, marching, drill formation, and so forth. But a substantial amount of this human capital may be of the general occupational type that is transferable to similar jobs in the civil sector.

This human capital formation takes place in several ways: through formal school training, through on-the-job training (OJT), and through actual job experience. The military maintains one of the largest educational establishments in the nation. All military re-

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16. The major problem here, however, is that young recruits are frequently unaware of what they do and do not want to do. In fact, for many it is this indecision that led to their joining the military.

cruits attend basic military training--i.e., the so-called "boot camp." In addition, about 95% of all new recruits attend formal technical schools. In these schools, which last from a few weeks to as much as two years (and average three to four months in length), the individual is taught about his or her new job. The classes consist of formal lectures and training, demonstration, and actual hands-on experience.

The on-the-job training and actual job experience in the military constitute another form of human capital accumulation. In fact, given the often theoretical nature of formal technical school training, the OJT and job experience may constitute the more significant form of human capital accumulation.

In sum, the military work experience is likely to represent a significant amount of human capital formation by the individual. And this fact has not gone unrecognized by potential recruits, as military training and job experience are two of the most frequently cited reasons for joining in the first place.

The Decision to Stay or Leave

Upon completing the enlistment tour, the individual must decide whether to remain in the military (if he is declared "eligible") or to return to the civilian labor force. The discussion focuses on this decision to stay or leave by outlining, first, the factors affecting the reenlistment decision: second, what individuals do in their post-service employment; and third, the migratory effects brought about by military service.

Factors Affecting the Reenlistment Decision

As has been the case with enlistment supply, reenlistment supply has been studied extensively during the past ten years or so. Again, a number of different academic disciplines have been brought to bear on the issue, including economics, sociology, and psychology, among others. The economic studies tend to show that reenlistment supply is quite sensitive to military and civilian pay opportunities. Specifically, the elasticity of supply with respect to pay has been shown to be in the neighborhood of 1.0 to 4.0, with 2.0 probably representing the best guess.[17] This means, then, that reenlistment supply is quite sensitive to military pay. That reenlistment supply should be more sensitive to pay than enlistment supply is not surprising, though, since individuals facing the reenlistment point are those who have already entered the military. That is, the initial enlistment decision screens out those individuals most opposed to military service on "taste" grounds, so that reenlistment supply is likely to be drawing from a more homogeneous manpower pool.

For a variety of technical reasons, studies have been less successful in pinpointing the responsiveness of reenlistment to unemployment rates. Nevertheless, the conventional wisdom is that reenlistment supply is in fact quite sensitive to unemployment, and a casual review of the evidence bears this point out. Clearly, however, more thorough study of this issue is warranted before definitive conclusions can be drawn.

Noneconomic factors have also been shown to play an important role in the individual's decision about whether to reenlist. A variety of studies, mainly using survey techniques, find that certain attributes of military service will either persuade or dissuade an individual from reenlisting. For example, job security is one of the most frequently cited reasons for individuals deciding to reenlist, while the loss of personal freedom is perhaps the dominant noneconomic reason why individuals choose to leave military service after the end of their first term. Since these are clearly not the only factors that affect the individual's reenlistment decision, the larger point is simply that reenlistment is a function of many variables, such that changes in one or more of these variables can in the long run significantly affect the numbers and types of individuals reentering the civilian youth labor force.

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[17] See, for example, John H. Enns, Reenlistment Bonuses and First-Term Retention (Santa Monica, Ca.: The Rand Corporation, 1977); and Gary R. Nelson, "Economic Analysis of First-Term Reenlistments in the Army," in Studies Prepared for the President's Commission, op.cit.

Post-Service Employment

As indicated earlier, military service may provide the opportunity to accumulate human capital--human capital that can be applied to subsequent civilian employment. The extent to which the military does lead to the accumulation of human capital has in fact been the subject of considerable study during the past five to ten years.[18]

These studies of veterans' post-service activities have tended to focus on one or more of the following three issues: general employability of military veterans, the extent to which veterans use some of the knowledge and experience gained during the military employment for their post-service civilian employment, and the earnings of veterans as compared with nonveterans. Although these studies differ substantially in their specific findings, one general theme does emerge. Specifically, military service in general does lead to the formation of human capital that can be applied to post-service civilian employment. As would be expected, though, the degree to which human capital accumulated during military service can be transfered to the civilian sector is obviously greater for individuals serving in military occupations with more direct civilian counterparts.

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[18] See, for example, Eva Norrblom, An Assessment of the Available Evidence on the Returns to Military Training (Santa Monica, Ca.: The Rand Corporation, 1977); Eva Norrblom, The Returns to Military and Civilian Training (Santa Monica, Ca.: The Rand Corporation, 1976); Robert B. Richardson, "An Examination of the Transferability of Certain Military Skills and Experience to Civilian Occupations," unpublished Ph.D. dissertation, Cornell University, 1966; William Mason, "On the Socio-economic Effects of Military Service," unpublished Ph.D. dissertation, University of Chicago, 1970; Adele P. Massell and Gary R. Nelson, The Estimation of Training Premiums for U.S. Military Personnel (Santa Monica, Ca.: The Rand Corporation, 1974); and Zvi Griliches and William Mason, "Education, Income, and Ability," Journal of Political Economy, vol. 80 (May/June 1972).

In general, these analyses of veterans' post-service employment activities show, first, that veterans trained in skill x during the military tend to be employed in larger numbers in skill x in the civil sector than would be implied by a mere random sampling. In other words, veterans tend to gravitate towards the kinds of occupations they had in the military. Thus, military service may have a potentially important effect on shaping the kinds of occupations that members of the youth labor force will enter in their post-service careers.[19] Second, individuals employed in a post-service occupation similar to their military occupation tend to show higher earnings than their veteran counterparts whose civilian occupations are not so directly related. In other words, veterans' post-service earnings in a given occupation are higher if the veteran's military service was in a related occupational area.[20]

Part of the above-cited earnings differential may be due to a so-called "certification" effect. That is, for individuals such as minorities and high school dropouts whose economic and employment opportunities are otherwise more limited, satisfactory completion of military service may be viewed by potential employers as an indicator of greater employability. Casual examination of the evidence bears

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19. Some of the correlation between individuals' military and post-service activities is explained by the fact that individuals' pre-service and military occupations are also correlated, so to the extent that individuals' pre- and post-service occupations correlate, so will their military and post-service occupations.

20. It is important to note that the studies are far from unanimous on this point. However, the studies that fail to find much of a relation have generally been hampered by data problems. In cases where there are sufficient data, they tend to show their positive earnings effect. See, Eva Norblomm, An Assessment of the Available Evidence, op. cit.

this point out, as black and high school dropout veterans both tend to see greater gains from their military service in subsequent civilian employment than do white high school graduate veterans. In general, however, the evidence is sketchy, so further study of the effects of military service on post-service earnings and employment opportunities clearly deserves more careful attention.

Finally, military service has a significant effect on post-service employment activities through the educational and training benefits offered by the Veterans Administration. The post World War II G.I. Bill educated literally hundreds of thousands of former servicemen. Although the nature of the G.I. Bill has recently changed,[21] the military will continue to represent a potentially important source of educational benefits for America's youth population. Only recently have the effects of military service on post-service education and training begun to be studied,[22] so all the effects are far from understood.

The general conclusion to emerge from this review of post-service activities is that military service may have important effects not only on the size of the youth labor force, but perhaps more important, on the composition of that labor force--especially the education and skills possessed by former service personnel reentering civilian life.[23]

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21. The present day GI Bill is contributory. That is, for every dollar that the service member contributes to his or her post-service education "fund", the Government contributes two dollars.

22. See, for example, Dave M. O'Neill, Sue Goetz Ross, and John T. Warner, "The Effect of Military Training and GI Bill Training on Civilian Earnings," in Richard V.L. Cooper, ed., Defense Manpower Policy, op. cit.

23. Note, however, that this does not imply that the current military-civilian mix of education, training, and experience is efficient. Rather, it merely indicates that there may be some important effects. The relevant policy questions--e.g., what is the "right" amount of military education and training from a social perspective?--obviously need to be examined in a broader context.

At the same time, definitive conclusions about the magnitude of these effects (or, in some cases, even their direction) must be tempered by the host of sample problems that the analyst encounters with most data sources. For example, studies of post-service earnings encounter a number of selectivity biases regarding who serves in the military and who does not, and who leaves the military and who does not.

More definitive conclusions regarding these effects must therefore await improved data and analysis. Indeed, one of this paper's principal recommendations is that special labor force data collection efforts (e.g., the National Longitudinal Survey) specifically focus on collecting information about all civilian and military work experience.

Migration

Another possible effect of military service is on migration patterns of American's youth. These effects have been relatively unstudied thus far, but we do know that military retirees, for example, tend to locate in disproportionately large numbers near military installations. This is because of the benefits provided near military installations (e.g., commissaries, free medical care, and so forth). Military service may have a similar effect on one-term veterans in terms of geographic migration and location, and these effects clearly need to be studied further.

THE MILITARY AND YOUTH LABOR STATISTICS

Two important conclusions emerge from the preceding discussion. First, the military's demand for labor is an important determinant of both the size and composition of the youth labor force. This means that changes in the military's demand for labor can have significant effects on the youth labor market, including employment prospects, the size of the youth labor force, and a host of other variables affecting American youth. Second, the military also exerts a major influence on the supply-side behavior of the youth labor force. Specifically, American youth have demonstrated a considerable degree of mobility between the military and civil sectors. This includes both the initial decision about joining the military and later decisions about whether to remain in or leave the military. Perhaps the most significant from the point of view of the civilian labor market is the human capital that former Service members bring back with them when they rejoin the civilian work force.

The implications of these findings for the measurement and collection of youth labor market information are several fold. Specifically, these implications concern (1) the measurement of youth unemployment rates, (2) the collection of aggregate labor force statistics, and (3) the collection of special labor force data depending upon the particular policy purposes for which this information is to be used. In this regard, labor force statistics would seem to have at least two important policy uses: (1) as an indicator for monitoring the "health" of the economy targeting particular government programs, and (2) as a research tool for investigating the determinants of labor supply and demand. The discussion below briefly examines the appropriateness of including military personnel in labor statistics from the perspective of each of these policy purposes.

In the first instance, labor force statistics--especially unemployment rates--provide useful measures for assessing the economy's "health." The results presented in this paper suggest that, for both theoretical and empirical reasons, military personnel ought to be viewed as being part of the labor force. On theoretical grounds, military service is little different from many other employers. Military service is entirely voluntary,[24] so the military competes as just one among many employers of the nation's youth. This is borne out empirically as well. Not only is military service apparently seen as an attractive employment option by a significant portion of the youth labor force--between 10 and 20 percent of young men enter the military--but members of the youth labor force have in fact demonstrated considerable mobility between the military and civil labor markets.[25] In other words, military service is an integral part of the employment pattern for a sizeable portion of the youth labor force.

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[24] On theoretical grounds, a case can be made (though perhaps not too persuasively) for excluding the military during periods of the draft. That is, since not all military participation is voluntary during a draft, military may be a more separate and distinct entity from civilian employment when a draft is present.

In terms of measuring unemployment rates, the above discussion suggests that those employed in the military ought to be counted as part of the labor force. Indeed, there is no more reason for excluding military personnel from labor statistics than there is for excluding other government employees, or any other employees for that matter. Because those serving in the military are employed, historical measurements based on the civilian labor force alone have therefore overestimated "true" unemployment rates, and in some cases substantially.[26] For example, the current procedure overestimates overall unemployment rates among black youth by some 15 to 25 percent--as opposed to a 10 percent or so overestimation of white youth unemployment rates--simply because such a large fraction of the black youth labor force is employed in the military.[27] Although this does not dismiss the problem of black unemployment, it does suggest that the problem is not quite as severe as a casual

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25. If, on the other hand, the military was empirically a distinct entity from the civilian sector, as in fact has been the case in some countries, then a case could be made for excluding the military from labor force measures on empirical grounds. That is, if there is little flow between the military and civil employment markets, then the inclusion or exclusion of the military from labor force measures is both less interesting and less important.

26. That is, the current procedure omits those employed in the military from the denominator of the ratio used to calculate the unemployment rate.

27. Moreover, because the military tends to select the "cream of the crop" from among black youth, those not serving in the military would be expected to be the ones that would have the most difficulty securing employment, from either military or civilian employers.

review of unemployment rates for black youth in the civilian labor force would seem to imply. More generally, when the purpose is one of assessing how well the economy is doing with respect to employing the members of its labor force, the foregoing suggests that military personnel ought to be included in labor force statistics.

At the same time, the foregoing should not be viewed to mean much change in the ways that data are collected or maintained. That is, although it seems desirable to define unemployment rates relative to the total labor force, it is useful to maintain separate statistics on the civilian labor force and on the total labor force, as is now the case. This is simply an example of a more general principle. Specifically, labor force statistics ought to be maintained for major segments of the youth labor market--e.g., according to age, race, geographic location, and so forth. That is, collecting and maintaining labor statistics according to these major segments of the youth labor force helps to pinpoint and spot certain problem areas. Because the military is in fact an important segment of the youth labor force, this suggests that the current procedure of maintaining separate labor force statistics for military and civilian youth employment is a valid one.

Besides their uses in monitoring aggregate employment and unemployment activity, labor statistics provide the core tool for investigating the determinants of labor force activity: participation, employment, earnings, occupational choice, and so forth. In this regard, this paper has argued vigorously that the military represents a potentially important source of human capital for a sizeable portion of American youth. The limited knowledge currently available suggests that military service can have significant effects on individuals' occupational choices, migration, and earnings, among other things.

Since the collection of individual data, both cross sectional (e.g., the CPS) and longitudiual (e.g., the NLS), represents the primary source for investigating the determinants of labor force activity, the foregoing argues strongly for incorporating information about individuals' military experience into these data collection efforts. For example, data collection efforts such as the National Longitudinal Survey, the Current Population Survey, the Census, and so forth, should place greater emphasis on collecting relevant information about the individual's military participation. This would include age of entry into the military, length of service, rank, occupational specialty, training received (both formal and on-the-job), and so forth. To the extent that current data sources do not properly measure this training and experience, then we are failing to recognize the full effects of alternative policy options. Therefore, greater attention needs to be directed toward collecting relevant information about the individual's military experience, in conjunction with his or her civilian experience.

In general, this calls for greater coordination of data collection efforts between military and civilian authorities. Such efforts are warranted, not only because youth labor markets are affected by both military and civilian work experience, but also because the controlled nature of the military environment affords the opportunity to examine certain youth productivity and behavioral parameters that can be observed only with great difficulty in the civilian sector. For example, recent surveys of military personnel have provided valuable information about the relationships among individuals' attitudes, their earnings prospects, and their actual employment decisions.[28] This was made possible largely by the fact that the military was able to first survey these individuals, then track and compare these individuals' actual decisions with what they said they had intended. Combined with the vast amounts of information available on the military personnel files, these types of surveys can be used to provide valuable information about individuals' attitudes, supply behavior, and productivity--not only in the military, but in the civilian labor market as well.

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[28] A number of recent data collection efforts illustrate the point. For example, to estimate the response to the military's health professionals scholarship program, a survey was administered to a stratified random sample of medical students across the country. The survey essentially asked these students to trace out their supply curve, not only with respect to values of the stipend, but also to such other variables as tour commitment, residency policy, and so forth. The results have been impressive, as prediction errors over the past three years have been in the neighborhood of 5 percent. In another effort, individuals' productivity on the job was measured. Combined with the attitudinal information also collected and the information available from personnel files, valuable insights have been gained about the determinants of productivity, attitudes, and supply behavior.

Areas where such cooperation and coordination between military and civilian data collection efforts could prove to be particularly profitable include certain ongoing and special civilian collection efforts, including future National Longitudinal Surveys, the Current Population Survey, and the Census. Alternatively, certain regular and special data collection efforts in the military could provide valuable information to civilian researchers and policy makers. Examples include the annual survey of new recruits at armed forces entrance and examination stations, exit and post-service surveys conducted by the military, attitudes of young women toward military service, and so forth.

In sum, this paper has argued that the military is a most important factor in youth labor markets. On the one hand, the military is a major source of jobs for American youth, while on the other, it is clear that military experience and training can play a significant role in the issues and problems of civilian labor market behavior. It is time that labor force statistics reflected this important role of the military.

DIRECT EFFECTS OF EMPLOYMENT AND TRAINING PROGRAMS ON EMPLOYMENT AND UNEMPLOYMENT: NEW ESTIMATES AND IMPLICATIONS FOR EMPLOYMENT POLICY

By: Charles C. Killingsworth and Mark R. Killingsworth

ABSTRACT

We first discuss the ways in which participants in employment and training programs are counted in official figures on the number of persons employed, unemployed and not in the labor force. We then analyze the consequences of an expansion of such programs, and present estimates of the purely"statistical" effects of expanding such programs on the number of persons employed, unemployed and not in the labor force. These effects appear to be substantial. For example, our estimates imply that, in the absence of any employment and training programs, the aggregate unemployment rate in 1976 would have been 0.8 percentage points higher than the actual figure, and the teenage unemployment rate would have been 3.9 percentage points higher than the actual figure. We conclude by discussing the implications of our analysis and estimates for employment policy and employment training programs as an instrument of employment policy.

INTRODUCTION

How do employment and training programs affect program participants, and what is the appropriate role for such programs in employment policy?* Most research on the effects of employment and training programs, and most discussions of their merits as an instrument of employment policy, focus on what may be called "ultimate" or "long run" effects: on the extent to which they affect the human capital (and thus the subsequent earnings and employment) of enrollees, and on the extent to which they change the structure of the labor force, shifting the economy's Phillips curve and reducing the unemployment rate associated with any given inflation rate. But a few studies (Cohen, 1969;

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Small, 1972) suggest that employment and training programs also have "short run" or purely "statistical" effects on employment and the unemployment rate: depending on the particular program in which participants are enrolled, enumerators for the Current Population Survey (CPS) count program participants as employed, unemployed or not in the labor force. Obviously, then, regardless of the ultimate impact of these programs on enrollees' earnings and employment, changes in program enrollments necessarily have a direct or short run or statistical impact on official CPS figures on employment and on the unemployment rate.

In this paper we have two objectives. First, relatively little is known about the magnitude of the statistical effect of employment and training programs, so our "short run" or "statistical" objective is to present estimates of the magnitude of this effect, with special reference to youth. We also have a "long run" or "analytical" objective, however: to discuss the role of employment and training programs as an instrument of employment policy. For it turns out that our analysis of the "statistical" effects of employment and training programs not only provides estimates of these effects but also has a number of important implications for broader issues of employment policy.

THE TREATMENT OF EMPLOYMENT AND TRAINING ENROLLMENT IN OFFICIAL LABOR FORCE STATISTICS

The substantial growth in enrollment in employment and training programs during the 1960s--from 50,000 to nearly 1,000,000 in 1971--posed a serious question for Federal statistics-takers: how should such enrollees be classified in official labor force statistics? In 1965, a Federal interagency committee adopted definitions which have been followed since that time. As Small (1972, p. 7) puts it:

> In the final analysis, persons (enrolled in such programs) were to be classified as employed if they were receiving wages rather than subsistence or other allowances, or if they were getting on-the-job training; as unemployed if they were enrolled in institutional (classroom) training.

> Job Corps participants were to be counted as not in the labor force. The household interviewers (for the CPS) were given detailed instructions for classifying those who volunteered information on participation.
>
> Most of the large manpower programs involved placing people in jobs rather than in classroom training, and most participants would therefore be counted among the employed. This would probably be true whether or not the household respondent offered any information on the enrollee's specific program participation, because holding a job and receiving a wage are fairly clearcut unambiguous activities. On the other hand, the line of demarcation between being unemployed and outside the labor force is much harder to define. Thus, how participants in programs such as the Work Incentive program are actually classified in the official labor force survey is uncertain.

Accordingly, employment and training programs may be classified according to the way in which their enrollees are counted in official employment and labor force statistics. We shall refer to programs whose enrollees are counted as not in the labor force--e.g., the Job Corps--as "Type I" programs; we shall refer to programs whose enrollees are counted as unemployed--e.g., institutional training programs--as "Type II" programs; and, finally, we shall refer to programs whose enrollees are counted as employed--e.g., Public Service Employment or on-the-job training programs--as "Type III" programs.

Table 1 shows how enrollees in each of the major employment and training programs undertaken by the Federal government during 1963-76 were classified in CPS unemployment and labor force statistics.[1] Table 2 summarizes total average annual enrollments in each type of program both for the general population and for youth (persons age

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1. For a capsule summary of the history and nature of many of these programs, see U.S. Department of Labor (1970, pp. 193-197).

TABLE 1.

MAJOR FEDERAL EMPLOYMENT AND TRAINING PROGRAMS 1963-76, BY LABOR FORCE CLASSIFICATION OF ENROLLEES

Program	Remarks
Type I programs (enrollees counted as not in the labor force)	
Job Corps	began 1965; continued under CETA
Type II programs (enrollees counted as unemployed)	
Manpower Development and Training Act (MDTA) - institutional training	began 1962; subsumed under CETA
Work Experience Program - programs other than on-the-job training	began 1965; subsumed under WIN
Work Incentive Program (WIN) - programs other than on-the-job training	began 1969
Comprehensive Employment and Training Act (CETA) - institutional training under Titles I, II, VI	began 1974
Type III programs (enrollees counted as employed)	
Manpower Development and Training Act (MDTA) - on-the-job training	began 1962; subsumed under JOP
Work Experience Program - on-the-job training	began 1965; subsumed under WIN
Work Incentive Program (WIN) - on-the-job training	began 1969
Neighborhood Youth Corps (NYC) - in-school and summer; out of school	began 1965; subsumed under CETA
College Work Study	began 1965
Comprehensive Employment Program (CEP)	began 1967; subsumed under CETA
Operation Mainstream	began 1965; subsumed under CETA
Public Service Careers (PSC), including New Careers and STEP	began 1970 (New Careers began 1967); subsumed under CETA
Job Opportunities in the Business Sector (JOBS) - Federally-subsidized	began 1968; subsumed under CETA
Jobs-Optional (JOP)	began 1971; subsumed under CETA
Public Employment Program (PEP)	began 1971; subsumed under CETA
Comprehensive Employment and Training Act (CETA) - on-the-job training, public service employment (PSE), adult work experience, youth employment programs	began 1974

sixteen to nineteen).[2] Depending on the particular kind of activity in which they were engaged (e.g., on-the-job training or institutional training), enrollees in the Work Incentive Program (WIN) were counted either as employed or unemployed; hence, WIN is in effect a blend of Types I and II and so WIN enrollments are shown separately in Table 2.

These tables reveal that the great majority of enrollees were enrolled in "Type III" programs--that is, were counted as employed during the period of their enrollment. In recent years, aggregate enrollment in all programs combined has been high both in absolute terms (e.g., in excess of 1,000,000) and relative to the level prevailing in the 1960s.

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[2] With some exceptions, the entries in Table 2 represent actual annual averages of current enrollment in each kind of program. These were calculated by aggregating annual average enrollment figures, taken from a variety of sources (e.g., issues of the Employment and Training Report of the President), for each of the individual programs listed in Table 1. Two major exceptions are as follows. First, available data for enrollments under CETA during 1974-1976 provide information one new (rather than total current) enrollments by quarter; for this reason, the entries in Table 2 for 1974-1976 include annual averages of new (rather than total current) CETA enrollments. To the extent that enrollees in CETA programs remained enrolled for more than a quarter, the 1974-1976 figures shown in Table 2 of course understate the actual total current annual enrollments. Second, available data for enrollments under the College Work Study program during 1965-1976 refer to awards (in effect, "slots") available during a given fiscal year rather than to actual recipients (enrollees on work-study payrolls) during a given calendar year. In arriving at the figures shown in Table 2, we treated fiscal and calendar year figures as equivalent, and multiplied the number of awards by 0.8 to obtain an estimate of the annual average number of actual recipients. Further, between fiscal (or, under our assumptions, calendar) years 1975 and 1976, the number of awards increased sharply, from 570,000 to 973,000--so sharply that we suspect that colleges and universities did not adjust in time to fill as much as 80 per cent of the maximum number of slots available in 1976. In arriving at the figures shown in Table 2, we therefore assumed that the "effective" number of awards available in 1976 was midway between the 1976 figure and the figure for 1977, 895,000, and multiplied this "effective" number by 0.8 to get an estimated annual average number of actual recipients during 1976.

TABLE 2.

TOTAL ENROLLMENT AND YOUTH ENROLLMENT IN MAJOR FEDERAL EMPLOYMENT AND TRAINING PORGRAMS 1963-76, BY TYPE OF PROGRAM

(Annual Averages, In Thousands Of Persons)

	WIN/Work Experience		Type I		Type II		Type III		Total	
Year	Total	age 16-19	Total	age 16-19	Total	age 16-19	Total	age 16-19	Total	age 16-19
1963	0	0	0	0	22	3	2	*	24	3
1964	0	0	0	0	43	8	10	1	53	10
1965	*	*	10	9	63	17	170	126	243	152
1966	*	*	28	26	62	14	395	297	485	337
1967	*	*	42	38	48	12	542	401	632	450
1968	3	*	33	30	53	13	543	399	632	442
1969	59	6	24	21	48	10	624	421	755	458
1970	91	10	20	15	51	9	674	462	836	497
1971	109	12	21	16	58	13	756	503	943	543
1972	115	14	22	17	53	10	1001	600	1191	641
1973	163	18	20	15	38	8	893	529	1114	570
1974	212	21	19	15	86	24	884	494	1202	555
1975	215	24	20	16	133	49	1264	655	1632	743
1976	265	29	20	16	159	46	1420	748	1864	839

Notes: * = negligible. Due to rounding, column entries do not always sum along rows to "Total" figure shown in last column. For sources, see text.

But while the size of these enrollments is substantial, the existence of substantial employment programs sponsored by the federal government is not, of course, unprecedented: enrollments in federal work-relief programs during the 1930s were still larger. There is, however, an interesting difference: in contrast with the procedures adopted in 1965, under which Type III enrollments of the 1960s and 1970s are counted as employed, participants in these work-relief programs during the 1930s were--and, in the historical statistics, still are--counted as unemployed. (For elaboration on this point see Darby, 1976, pp. 2-8, and the references therein.) Table 3 illustrates the consequences of counting 1930s work-relief program participants as employed (as they would be counted under current procedures) rather than as unemployed (as they were, and still are, counted in official statistics).[3] Presumably, the growth in employment and training program enrollments during the 1960s and 1970s may also have had an important effect

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[3] Darby gets "recalculated" figures (or, in his terminology, "corrected" figures) which differ somewhat from ours. (Compare, for example, the fourth column in Table 3 in Darby, 1976, p. 8, with the third column in our Table 3.) These differences seem to be the result of using different data on work-relief enrollment: Darby uses data on total Federal, state and local work-relief enrollment appearing in a 1966 Department of Commerce publication (see notes to Table 2 in Darby, 1976, p. 7, especially in reference to column 7 of that table); while we use data on Federal work-relief enrollment only appearing in the 1943 and 1946 editions of the Statistical Abstract of the United States (see notes to our Table 3). Despite these differences, our "recalculated" unemployment rate figures for 1933-1941 are similar to Darby's "corrected" figures for the same years; and, like us, Darby concludes that classifying work-relief enrollees as employed rather than unemployed would have a substantial effect on measured unemployment rates for those years.

TABLE 3.

PARTICIPANTS IN FEDERAL WORK-RELIEF PROGRAMS AND REPORTED AND RECALCULATED UNEMPLOYMENT RATES, 1933-42

(Annual Averages)

Year	Work-Relief Program Participants* (thousands)	Unemployment Rates		Percentage reduction in unemployment rate****
		Reported**	Recalculated***	
1933	4151	24.9	18.3	26.5
1934	661	21.7	20.7	4.6
1935	3817	20.1	13.8	31.3
1936	3666	16.9	10.8	34.9
1937	2553	14.3	10.0	30.1
1938	4210	19.0	12.3	35.3
1939	3246	17.2	12.0	30.2
1940	2869	14.6	10.0	31.5
1941	1767	9.9	7.0	29.3
1942	386	4.7	4.1	12.8

Notes:

* = includes Civil Works Administration, Civilian Conservation Corps, National Youth Administration, Works Progress Administration and other Federal agency projects financed from emergency funds. Data do not include administrative personnel. (Source: Statistical Abstract of the United States, 1943 edition, Table 204; and 1946 edition, Table 259.)

** = Source: 1947 Handbook of Labor Statistics, Table A12.

*** = Calculated by switching all participants in Federal work-relief programs from "unemployed" to "employed" category.

**** = (column 2 - column 3)/column 2.

on reported employment and on the reported unemployment rate.[4] But how may one measure the purely "statistical" effects of these programs, and just how large has this effect actually been?

MEASURING THE STATISTICAL EFFECTS OF EMPLOYMENT AND TRAINING PROGRAMS

For purposes of measuring the purely statistical effects of an expansion of employment and training programs, it is useful to divide the total effect of such expansion into two components: "immediate" and "induced." First consider the immediate effect of each kind of program. When a person enters a Type I program, his post-enrollment status is always "not in the labor force," so that the immediate effect of an expansion of a Type I program is to increase the number of persons counted as absent from the labor force by an amount equal to the number of enrollees who were in the labor force (that is, were employed or unemployed) prior to enrollment; and to reduce the numbers of persons counted as employed or unemployed by amounts equal to the numbers of enrollees who were employed or unemployed, respectively, prior to enrollment. (Of course, persons not in the labor force prior to enrollment are still counted as not in the labor force after they enter a Type I program.) Similarly, on net the immediate effect of expanding a Type II program is to increase the number of persons counted as unemployed by an amount equal to the number of enrollees who were not unemployed (that is, were either employed or not in the labor force) prior to enrollment; and to reduce the numbers of persons counted as employed or not in the labor force by amounts equal to the numbers of enrollees who were employed or not in the labor force, respectively, prior to enrollment. (Of course, persons who were unemployed prior to enrollment are still counted as unemployed after they enter a Type II program). Finally, on net the immediate effect of expanding a Type III program is to increase the number of persons counted as employed by an amount equal to the number of persons who were not employed (that is, were either unemployed or not in the labor force) before they entered the program; and to reduce the numbers of persons counted as unemployed or not in the labor force by amounts equal to, respectively, the numbers of enrollees who were unemployed or not in the labor force prior to enrollment. (Of course, persons who were employed prior to enrollment are still counted as employed after entering a Type III program.)

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[4] Note that the third column in our Table 3 does not show what unemployment rates would have been during 1933-1941 in the absence of government work-relief programs. It simply shows what official unemployment rate statistics for these years would look like if the official definition of "unemployment" used for those years were the same (with respect to enrollees in work-relief and similar government programs) as the one in current use. Hence a comparison of the second and third columns of Table 3 reveals only "the impact of this purely definitional change"; in and of itself, it does not have any particular analytical importance, since it does not show the difference, under either definition, between reported unemployment rates and the unemployment rates which would have prevailed in the absence of work-relief programs. Though he never says so in so many words, Darby seems to believe that the "corrected" (in his terms") or "recalculated" (in our terms) unemployment rate would have prevailed either in the presence or the absence of work-relief programs. In particular, he appears to believe that such programs "crowded out" other employment on a one-for-one basis or, more or less equivalently, that the statistical effect of such programs on recorded aggregate employment (under either the 1930s or the current definition) was zero. (See Darby, 1976, pp. 5-6, especially the second complete sentence on p. 6.) Our analysis in Section II and in Appendix A implicitly calls this notion into question. For additional criticism of Darby's "crowding-out" assumption, criticism which is addressed explicitly to Darby's paper, see Kesselman and Savin (1977).

Hence it is quite simple and straightforward to work out the "immediate" effect on reported labor force statistics of expansion of any of the employment and training programs just mentioned. Describing the "induced" effects on reported labor force statistics is more difficult. This is because these "induced" effects refer (i) to the reaction of the rest of the economy to enrollment increases or decreases in the "employment and training sector" and (ii) to the reaction of the rest of the economy to any changes in the economic environment which accompany and are the consequence of such enrollment changes. It is usually possible to say what the direction of these "induced" effects on the rest of the economy will be. (For example, it seems reasonable to suppose that employers will fill at least some of the jobs which are vacated by employed persons who quit in order to enter employment and training programs.) However, the magnitude of such effects is difficult to determine _a priori_ without certain kinds of quantitative information(e.g., on elasticities of demand, supply and substitution); and in general this information is neither readily available nor, even if available, very reliable.

For this reason, previous work on the question of the statistical effects of employment and training programs (see Cohen, 1969, and Small, 1972) has been based on an _ad hoc_ assumption of convenience about aggregate labor market behavior: that measures of what we have here called the "immediate" effects of the expansion of such programs on reported aggregate labor force statistics provide a satisfactory approximation to the _total_ effects of such programs on aggregate labor force statistics; or, more or less equivalently, that "induced" effects of such programs on these statistics are of secondary importance and may be neglected in arriving at an approximate measure of the total statistical effects of employment and training programs.

Hence, for example, this amounts to an assumption that increasing Type I program enrollment reduces reported employment by an amount equal to the number of new enrollees who were in the labor force prior to enrollment. The assumption may also be applied in reverse: here it amounts to an assumption that abolishing a Type I program would increase reported employment by an amount equal to the number of enrollees who were employed prior to enrollment, and would increase the reported labor force by an amount equal to the number of enrollees who were in the labor force prior to enrollment. Similarly, in the case of Type II programs, the _ad hoc_ assumption of convenience amounts to an assumption that abolishing a Type II program would increase reported employment by an amount equal to the number of enrollees who were employed prior to enrollment, and would reduce the reported labor force by an amount equal to the number of enrollees who were not in the labor force prior to enrollment. Finally, in the case of Type III programs, this amounts to an assumption that abolishing a Type III program would reduce reported employment by an amount equal to the number of enrollees who were not employed prior to enrollment, and would reduce the reported labor force by an amount equal to the number of enrollees who were not in the labor force prior to enrollment.

It is important to note that this *ad hoc* assumption of convenience refers only to aggregate totals for persons employed, unemployed and not in the labor force, and does not entail any assumptions about the effect of abolishing (or increasing enrollment in) any program on the labor force status of any particular *individual*, enrolled or not. For example, the assumption does say that, if all of the enrollees in a Type I program were in the labor force prior to enrollment, then abolishing that program would increase the reported labor force by an amount equal to the number of enrollees. But the assumption does *not* imply anything about the effect of abolishing the program on the employment status of any particular individual whether previously enrolled in the program or not. In fact, if one is interested only in measuring the effects of expanding or contracting employment and training programs on aggregate labor force statistics, then, in general, assumptions or results about the effects of such changes on the labor force status of given individuals are neither necessary nor particularly relevant. All that is required is the *ad hoc* assumption of convenience which we have stated above.[5]

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[5] In fact, neither Small nor Cohen states the assumption in the form given here. Rather, they both say that, in deriving estimates of the total statistical effects of employment and training programs, they assume that "enrollees would have continued at their previous (i.e., pre-enrollment) employment status during their participation in the federal manpower program if there had been no federal manpower program" (Cohen, 1969, p. 498), or, equivalently, that "enrollees would have continued their pre-enrollment status in the absence of the programs" (Small, 1972, p. 11). This seems to have given rise to a fair amount of unnecessary confusion and doubt as

Since it refers to aggregates rather than to particular individuals, the ad hoc assumption of convenience used in previous work on the statistical effects of employment and training programs is not unlike the assumptions used to construct and interpret supply and demand schedules. For example, the point of intersection of supply and demand for labor schedules gives the total number of persons who will be employed in equilibrium at a given point in time, but it does not show which persons will be employed. To say anything about the latter will require aditional assumptions (e.g., about labor turnover); but such assumptions are unnecessary if the objective is simply to discuss the aggregate level of employment. Indeed, this similarity between the ad hoc assumption of convenience about the effects of employment and training programs on aggregate labor force statistics and the assumptions used to construct and interpret supply and demand schedules is an advantage. As will become evident below and in Appendix A, this similarity makes it possible to analyze the effects of such programs on aggregate labor force statistics within the context of a simple model of supply and demand in the labor market.

In sum, the ad hoc assumption of convenience discussed above constitutes an ad hoc estimation method--or AHEM, for short--which may be used to estimate the effects of employment and training programs on aggregate statistics on persons employed, unemployed and not in the labor force. AHEM estimates refer to what we have called

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5. (cont.) to the validity of their estimates, since this version of the assumption is extremely stringent and, as Smith (1971, 1973) has noted, is probably quite unrealistic. However, it is important to note that Cohen and Small discuss only the effects of employment and training programs on aggregate labor force statistics, so that none of their work actually requires this extremely strong assumption about effects on particular individuals. The only assumption required for any of their estimates is the much more general ad hoc assumption of convenience, stated in the text, about aggregate behavior.

"immediate" program effects only, and ignore all "induced" effects of the expansion of these programs on the rest of the economy. Intuition therefore suggests that AHEM estimates of the total statistical effect of such programs are probably conservative. In particular, it can be shown that, because of the nature of the "induced" effects neglected by the AHEM procedure, the AHEM technique is always downward-biased: AHEM estimates will consistently overstate any decreases in employment, labor force or the unemployment rate which are attributable to increases in program enrollment and will consistently understate any increases in these variables which are the result of increases in enrollments.

In Appendix A we present a technical discussion of the reasons why this is so. Appendix A analyzes the statistical effects of employment and training programs in the context of a formal (though relatively simple) model of the labor market, and as such may be of some interest to the technically-oriented reader (e.g., the professional economist). To summarize the results in Appendix A for the general reader, we think it sufficient, for our present purposes, to note that Appendix A suggests that there are two basic reasons why the AHEM procedure is "conservative" in the sense given above. First, the AHEM procedure ignores the fact that some of the vacancies created in the rest of the economy when employed workers depart to enroll in employment and training programs will be filled with new employees, so that, even when the labor market clears, employment in the rest of the economy is not reduced on net by as much as the number of new enrollees who were employed in the rest of the economy prior to enrollment. Second, to the extent that markets do not clear--or, loosely speaking, to the extent that the economy is below "full employment"--and the government decides to expand aggregate demand by expanding employment and training program enrollment, the AHEM procedure also ignores the multiplier effects on employment in the rest of the economy which occur as the result of this expansion in aggregate demand.

With this as prologue, it is not hard to discern the general nature of the statistical effects of employment and training programs in the United States in the 1960s and 1970s. In essence, Type III programs take persons out of the "unemployed" and "not in the labor force" categories and put them into the "employed" category; and these "immediate" effects of Type III programs are reinforced by additional "induced" effects: employers fill some of the jobs vacated by the employed persons who enroll, and the additional aggregate demand generated by the expansion of the programs stimulates aggregate employment still further. Moreover, Type III program enrollments have generally been much larger than enrollments in other programs (see Table 2), so, loosely speaking, "As Type III programs go, so goes the economy." This means that, on the whole, the expansion of enrollment in employment and training programs which occurred during the 1960s and 1970s increased both recorded employment and the recorded labor force to levels above (and reduced the recorded unemployment rate to a level below) what would have prevailed in the absence of these programs. But what is the magnitude of these effects, and what implications do they have for employment policy? We turn to these questions in the next two parts of the paper.

ESTIMATES OF THE STATISTICAL EFFECTS OF EMPLOYMENT AND TRAINING PROGRAMS

In principle, one could estimate the direct effects of employment and training programs using either of two procedures. First, one could specify a complete model of labor markets, representing both the supply of and demand for enrollments in employment and training programs explicitly in that model; estimate the parameters of the model; and then measure the direct effects of employment and training programs by (for example) simulating the behavior of the model with the supply of enrollments set at zero and then comparing these results with observed behavior. Unfortunately, specifying and then estimating such a model for use in simulations of this kind is no simple task; doing the job properly may not require building a complete macromodel, but it certainly calls for more than a few ordinary least squares regressions--and it probably calls for more data than are actually available. Developing estimates based on a complete model of labor markets is an important goal for future research; for the present, we shall content ourselves with presenting estimates of the direct effects of employment and training programs derived from the second procedure, AHEM. In view of the discussion above, it is worth stressing once again that estimates based on AHEM are conservative: if anything, the "true" statistical effects are probably greater than the estimates which we shall present below.

With this in mind, consider Tables 4-7, in which we present official CPS figures on aggregate unemployment, employment, etc., and AHEM estimates of what these labor market variables would have been in the absence of any employment and training programs. (For a detailed discussion of the procedures used in deriving the AHEM estimates set out in Tables 4-7, see Appendix B.) Table 4 contrasts CPS figures on actual levels of aggregate employment, unemployment and labor force (that is, the actual values of these labor market variables, observed in the presence of employment and training programs) with AHEM figures (that is, our estimates of what these variables would have been in the absence of the programs) for the total population. Hence the columns headed "diff" in Table 4 gives the purely statistical effect of employment and training programs on the variables considered there. Table 5 presents similar comparisons for the aggregate employment-population ratio, the unemployment rate and the labor force participation rate for the population as a whole. Finally, Tables 6 and 7 present analogous results for the teenage population (persons age sixteen to nineteen).

Both for the population as a whole and for the teenage population, our estimates imply that the statistical effects of expansion of employment and training programs (especially employment programs)

TABLE 4.

AHEM AND CPS MEASURES OF EMPLOYMENT, UNEMPLOYMENT AND LABOR FORCE FOR TOTAL POPULATION, 1963-76

(Annual Averages, In Thousands Of Persons)

	Employment			Unemployment			Labor Force		
Year	CPS	AHEM	diff	CPS	AHEM	diff	CPS	AHEM	diff
1963	67762	67763	*	4070	4070	*	71833	71832	*
1964	69305	69302	3	3786	3789	-3	73091	73090	1
1965	71088	70957	132	3366	3749	-113	74455	74436	19
1966	72895	72609	286	2875	3109	-234	75770	75718	52
1967	74372	73982	390	2975	3296	-321	77347	77277	70
1968	75920	75522	397	2817	3130	-314	78737	78653	84
1969	77902	77424	476	2832	3205	-373	80733	80629	104
1970	78627	78111	516	4088	4473	-386	82715	82584	130
1971	79120	78538	582	4993	5415	-422	84113	83953	160
1972	81702	80909	793	4840	5441	-602	86542	86351	191
1973	84409	83726	684	4304	4791	-487	88714	88517	197
1974	85936	85247	688	5076	5520	-445	91011	90768	243
1975	84753	83776	1006	7830	8501	-671	92613	92278	335
1976	87485	86388	1097	7288	7992	-705	94773	94381	392

Note: Figures within rows may not sum to total due to rounding. * = negligible.

TABLE 5.

AHEM AND CPS MEASURES OF EMPLOYMENT, UNEMPLOYMENT AND LABOR FORCE RATIOS FOR TOTAL POPULATION, 1963-76

(Annual Averages, In Per Cent)

	Employment-population ratio			Unemployment rate			Labor force participation rate		
Year	CPS	AHEM	diff	CPS	AHEM	diff	CPS	AHEM	diff
1963	55.4	55.4	*	5.7	5.7	*	58.7	58.7	*
1964	55.7	55.7	*	5.2	5.2	*	58.7	58.7	*
1965	56.2	56.1	0.1	4.5	4.7	-0.2	58.9	58.8	*
1966	56.9	56.7	0.2	3.8	4.1	-0.3	59.2	59.1	*
1967	57.3	57.0	0.3	3.8	4.3	-0.4	59.6	59.6	0.1
1968	57.5	57.2	0.3	3.6	4.0	-0.4	59.6	59.6	0.1
1969	58.0	57.6	0.4	3.5	4.0	-0.5	60.1	60.0	0.1
1970	57.4	57.0	0.4	4.9	5.4	-0.5	60.4	60.3	0.1
1971	56.6	56.2	0.4	5.9	6.4	-0.5	60.2	60.1	0.1
1972	57.0	56.5	0.6	5.6	6.3	-0.7	60.4	60.2	0.1
1973	57.8	57.4	0.5	4.9	5.4	-0.6	60.8	60.7	0.1
1974	57.8	57.4	0.5	5.6	6.1	-0.5	61.2	61.1	0.2
1975	56.0	55.4	0.7	8.5	9.2	-0.8	61.2	61.0	0.2
1976	56.8	56.1	0.7	7.7	8.5	-0.8	61.6	61.4	0.3

Note: Figures within rows may not sum to total due to rounding. * = negligible.

TABLE 6.

AHEM AND CPS MEASURES OF EMPLOYMENT, UNEMPLOYMENT AND LABOR FORCE FOR POPULATION AGE 16-19, 1963-76

(Annual Averages, In Thousands of Persons)

	Employment			Unemployment			Labor force		
Year	CPS	AHEM	diff	CPS	AHEM	diff	CPS	AHEM	diff
1963	4255	4255	*	883	883	*	5138	5138	*
1964	4516	4516	*	872	872	*	5390	5390	*
1965	5036	4933	103	874	964	-90	5910	5924	14
1966	5721	5494	227	836	1024	-188	6557	6595	38
1967	5682	5379	303	838	1090	-252	6519	6570	51
1968	5780	5481	299	839	1076	-237	6618	6680	62
1969	6117	5803	314	853	1091	-238	6970	7046	76
1970	6141	5795	346	1105	1358	-253	7246	7340	94
1971	6195	5816	379	1257	1532	-275	7453	7557	104
1972	6722	6266	456	1302	1633	-331	8024	8149	125
1973	7236	6859	377	1225	1484	-259	8461	8579	118
1974	7403	7058	345	1410	1628	-218	8813	8940	127
1975	7046	6589	457	1752	2039	-287	8799	8969	170
1976	7269	6767	502	1701	2004	-303	8970	9168	198

Note: Figures within rows may not sum to total due to rounding. * = negligible.

TABLE 7.

AHEM AND CPS MEASURES OF EMPLOYMENT, UNEMPLOYMENT AND LABOR FORCE RATIOS FOR POPULATION AGE 16-19, 1963-76

(Annual Averages, In Per Cent)

	Employment-population ratio			Unemployment rate			Labor force participation rate		
Year	CPS	AHEM	diff	CPS	AHEM	diff	CPS	AHEM	diff
1963	37.4	37.4	*	17.2	17.2	*	45.2	45.2	*
1964	37.3	37.3	*	16.2	16.2	*	44.5	44.5	*
1965	38.9	38.1	0.8	14.8	16.3	-1.6	45.7	45.6	0.1
1966	42.1	40.4	1.7	12.7	15.7	-3.0	48.2	48.0	0.2
1967	42.1	39.9	2.2	12.8	16.8	-4.0	48.4	48.0	0.4
1968	42.2	40.0	2.2	12.7	16.4	-3.7	48.3	47.9	0.5
1969	43.4	41.2	2.2	12.2	15.8	-3.6	49.4	48.9	0.5
1970	42.3	39.9	2.4	15.2	19.0	-3.7	49.9	49.3	0.6
1971	41.3	38.8	2.5	16.9	20.9	-4.0	49.7	49.0	0.7
1972	43.5	40.6	3.0	16.2	20.7	-4.4	52.0	51.1	0.8
1973	46.0	43.6	2.4	14.5	17.8	-3.3	53.7	53.0	0.8
1974	46.1	44.0	2.1	16.0	18.7	-2.7	54.9	54.1	0.8
1975	43.3	40.5	2.8	19.9	23.6	-3.7	54.1	53.1	1.0
1976	44.3	41.2	3.1	19.0	22.8	-3.9	54.6	53.4	1.2

Note: Figures within rows may not sum to total due to rounding. * = negligible.

since 1963 have grown steadily in importance. The effect of employment and training programs on reported levels and rates of unemployment has increased steadily over time; the effect on reported levels of employment and labor force, and on reported employment-population and labor force participation figures, has likewise increased steadily over time.

In view of our discussion in Part II above, this is hardly astonishing; but the magnitudes of these effects may come as something of a surprise. For example, the estimates suggest that, in the absence of employment and training programs, the national unemployment rate would have been about eight-tenths of a percentage point higher in 1976 than the actual figure; and that the teenage unemployment rate would have been about 3.9 percentage points higher than the official 1976 figure. Similarly, the estimates imply that, in the absence of the programs, the aggregate employment-population ratio would have been about seven-tenths of a percentage point lower in 1976 than the actual figure; and that the teenage employment-population ratio would have been about 3.1 percentage points lower than the actual 1976 figure.[6]

Finally, the estimates also shed some interesting light on the experience of the second half of the 1960s. Both overall and for teenagers, unemployment rates hit their lowest level for the entire decade in 1969, and employment-population ratios reached their highest level for the entire decade in 1969. Tables 5 and 7 suggest that the effect of employment and training programs on these patterns was considerable. According to the estimates presented in Tables 5 and 7, almost 30% of the total decline in the overall national unemployment rate between 1964 and 1969 was a consequence of the statistical effects of employment and training programs; and that these statistical effects account for nearly all (90%) of the decrease in the teenage unemployment rate between 1964 and 1969.

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[6] Of course, these are estimates, which, as indicated in n. 2 above, are subject to some measurement error. Accordingly, they should be interpreted with some caution. However, to the extent that measurement errors induce systematic biases, we suspect that they work in a downward or conservative direction. Both because of the nature of the AHEM approach and because 1974-1976 CETA enrollment data used in our calculations almost certainly understate actual average total current enrollment (see n. 2 above), it seems probable that the differences between the official 1976 employment, labor force, etc., figures and those which would obtain in the absence of employment and training programs are larger than the ones given in the text.

Of course, the line between unemployment and absence from the labor force is not always easy to draw, and so some observers--notably Geoffrey Moore--have argued that for many purposes the employment-population ratio is a better measure of labor market behavior than the unemployment rate. In the present case, however, comparison of the employment-population ratio with and without employment and training programs over 1964-1969 tells essentially the same story as the comparison of unemployment rates during the same period. Tables 5 and 7 imply that over 15% of the increase in the aggregate employment-population ratio during 1964-1969 was a consequence of the expansion of employment and training programs, and that over 35% of the increase in the teenage employment-population ratio during 1964-1969 was likewise the result of this expansion.[7]

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[7] That is, the increase between 1964 and 1969 in the reported aggregate employment-population ratio was 2.3 percentage points; but the reported employment-population ratio in 1969 would have been 0.4 percentage points lower than it actually was had there been no employment and training programs, according to our estimates. (See Table 5.) Hence the program's purely statistical effects "account" for 0.4/2.3 = 17.4% of the total increase in the aggregate employment-population ratio during 1964-1969. Similarly, the programs account for 2.2/6.1 = 36.1% of the increase in the teenage employment-population ratio between 1964 and 1969; for 0.5/1.7 = 29.4% of the decrease in the aggregate unemployment rate during these years; and for 3.6/4.0 = 90% of the 1964-1969 decrease in the teenage unemployment rate.

POLICY IMPLICATIONS

The estimates presented here have an obvious empirical significance; moreover, taken in conjunction with the analysis above (which is presented in more detail in Appendix A), the estimates have a number of implications for employment policy and for employment and training programs as instruments of employment policy.

That there is still debate on these issues might seem somewhat surprising, since, as is well known, the debate was supposed to have been over with more than ten years ago. To be sure, even in the good old days of the 1960s, some advocated employment and training programs as means of effecting structural changes in the labor force and reducing the inflation rate associated with any given unemployment rate. But a second school sought what might be called the lift of a driving demand: they argued for monetary and fiscal measures to expand aggregate demand and move the economy along a negative-sloped Phillips curve, incurring an acceptably small increase in inflation in exchange for a much desired reduction in the unemployment rate. In the end, policy gave much more emphasis to aggregate demand measures than to structural measures, and, as shown in Tables 5 and 7, unemployment rates as reflected in CPS data fell sharply. The proponents of what has now become the new old-time religion of demand expansion maintained that this experience renders a "clear-cut verdict" (Heller, 1966, p. 64) on the merits of aggregate demand measures, making "...it ...as clear today as it can possible be" (Ackley, 1966) that the strategy "worked amazingly well" (Oken, 1976, p. 70): the view that "...the inadequate demand camp was right and the structuralists were wrong" (Ackley, 1966) "...was gloriously confirmed by the ease with which new jobs were created and unemployment diminished in the subsequent expansion of aggregate demand" (Tobin, 1974, p. 16)--thus demonstrating "...that macroeconomics can, black youths aside, achieve full employment" (Samuelson, 1969) and that "the American economy can reach unemployment rates of close to 3% through the use of simple fiscal and monetary policies" (Thurow, 1973, p. 84).

If the debate was supposed to be over, why has it continued? Primarily, it seems, because economists rediscovered supply, and realized that the scissors which the aggregate demand school wielded had only one blade. First came the realization that demand expansion not only reduces unemployment but also raises prices, and that eventually money wages will adjust to catch up with prices--thereby cancelling at least some of the previous gains in employment: the demand-expansion road up the Phillips curve seems, in the long run, to be appreciably steeper and more dangerous than initially thought. More recently has come the realization that government supply-side programs have contributed in no small way to recent gains in a variety of economic indicators--gains which were once thought to be attributable entirely to the expansion of aggregate demand during the 1960s.

Our analysis and estimates bear on this debate in several respects. First, just as other authors have found that various supply-side programs--as opposed to "simple fiscal and monetary policies" as such--made an important contribution to the attainment of various policy goals during the 1960s,[8] we, too, conclude that supply-side (i.e., employment and training) programs account for a not inconsiderable part of the reduction in unemployment rates (and the increase in employment-population ratios) during the 1960s. The "clear-cut verdict" which emerges from a consideration of Tables 5 and 7 is that the purely statistical effects of employment and training programs had an important effect on key indicators of employment and unemployment; and the most interesting hypothesis about aggregate demand which is "gloriously confirmed" by these tables is the proposition that members of the aggregate demand school are no more immune from the post hoc fallacy than are other economists.

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[8] For example, Plotnick and Skidmore (1975) find that much of the decrease in the incidence of recorded poverty during the 1960s was the result of the substantial expansion of government transfer programs (rather than expansion of aggregate demand per se) during that period. Likewise, Butler and Heckman (1977) conclude that "...the supply side effects of recent policy [such as government welfare and transfer programs] play an important role in explaining the recent measured increase in the ratio of wages and incomes of blacks to the wages and incomes of whites" (p. 235).

Second, our analysis also suggests that greater reliance on employment and training programs as a means of reducing unemployment by shifting the economy's Phillips curve may be preferable to what now appears to be the rather perilous policy of reducing unemployment by relying solely on demand expansion and moving along a given--and potentially quite steep--Phillips curve. Indeed, our discussion of the statistical effects of employment (Type III) programs under the condition of general market clearing or, loosely speaking, "full employment" (see especially Appendix A) implies that expansion of such programs can reduce the reported unemployment rate and increase reported employment even under conditions of general market clearing--when the only long-run effect of a once-and-for-all demand expansion will be an increase in the price level, and when monetary and fiscal policies to drive the unemployment rate still lower will generate only an accelerating rate of inflation.[9] Since teenage unemployment, especially among blacks, is high even at "full employment," this is of course particularly important for policies to reduce teenage unemployment.

Finally, our discussion in Appendix A of the statistical effects of employment and training programs under conditions of non-market clearing (or what is usually, somewhat imprecisely, called "below full-employment") suggests that expansion of such programs in conditions of non-market-clearing can be a particularly potent form of demand expansion--one which, moreover, can actually be *more* powerful than conventional monetary and fiscal policies as a means of reducing "deficient-demand" unemployment. The analysis of Part II above leads directly to the conclusion that expansion of employment programs will reduce unemployment and increase employment under conditions of non-market-clearing by *more* than, say, a tax cut which raises effective aggregate demand by the same amount.[10] Indeed, if the government expands employment programs under conditions of non-market-clearing entirely by enrolling previously unemployed persons, it will create at least as many jobs *in the private sector* as a tax cut involving the same dollar outlays[11]--and of course will create additional jobs in the public sector as well.

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[9] Proponents of the "natural rate of unemployment" hypothesis may thus find it of some interest that an expansion of employment programs is a means of reducing the unemployment rate without, at the same time, incurring an accelerating rate of inflation.

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[10] This is evident from Figure 2 of Appendix A. An increase in aggregate demand effected via, say, a tax cut will shift firms' demand from the D' schedule of Figure 2 to the D schedule, and would raise total employment from e' to e^*_R. In contrast, an expansion of employment programs which had the same effect on aggregate demand would raise employment *in the rest-of-the-economy sector* from e' to e^*_R, and would raise training sector employment by an additional amount $dx_e + dx_u$, with the total being larger than that effected by the tax cut.

[11] Of course, this is simply a straightforward extension of the familiar balanced-budget multiplier theorem. (See, for example, Killingsworth and King, 1977, esp. pp. 26-28.) To the extent that so-called "fiscal substitution" effects operate, they simply reduce the *difference* between the effectiveness of employment programs and that of a tax cut. (See, again, Killingsworth and King, 1977, esp. pp.23-25.)

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APPENDIX A
A SIMPLE MODEL OF THE STATISTICAL EFFECTS OF EMPLOYMENT AND TRAINING PROGRAMS

To see clearly--albeit in a somewhat intuitive fashion which suppresses various details--the nature of the statistical effects of employment and training programs, and to see the nature of AHEM estimates of these effects, it is useful to consider the case of an expansion in enrollment of a Type III program in the context of a simple model of the labor market. (As is evident from Table 1 and 2, enrollment in Type III programs is by far the largest of that in any program, so the results presented here may be taken as a fairly good indication of the effect of all such enrollments: the effects of Type III programs will swamp the effects of Type I and II programs.) Two "sectors" of the labor market are considered: the "employment and training sector," and the "rest-of-the-economy" sector (or ROE, for short). In terms of our discussion in the text, the "immediate" effects of employment and training programs pertain to the "employment and training sector," while what we have called "induced" effects refer to effects on the ROE. Since the "immediate" effects have been discussed in some detail in the text, we focus here on the "induced" effects of employment and training programs and hence on the ROE sector.

As usual, the supply of labor to the ROE, S, is positively related to the real wage, w, while the demand for labor in the ROE, D, is negatively related to the real wage. Figure 1 presents these two schedules. Now suppose--purely for the sake of argument--that all markets clear and that the prevailing real wage rate is w*, at which supply and demand are equal and equilibrium employment in the ROE is e_R^*.[1] Next suppose that the government expands enrollment in a Type III program by an amount dx.[2] This enrollment increase comes from three sources: from persons previously employed in the rest of the economy, dx_e; from persons previously unemployed and seeking work in the rest of the economy, dx_u; and from persons previously not in the labor force, dx_n. So

$$dx = dx_e + dx_u + dx_n$$

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[1] Of course, labor turnover and job search will generate some positive unemployment rate even at this point of general market clearing. See, for example, Hansen (1970).

[2] Presumably, this increase comes about either because the government offers better stipends or training to trainees, or because existing stipends and training were sufficiently attractive to create an excess of applicants over available places which the government now decides to satisfy more fully, or some combination of these two things.

Now, in terms of the model of the labor market of the ROE depicted in Figure 1, expansion of the Type III program shifts the ROE labor supply schedule to the left by an amount equal to dx_e--that is, dx_e fewer people are available to the ROE at any real wage in the vicinity of the current level, w*. Hence dx_e vacancies open up in the ROE; labor is now somewhat scarcer there, and so, competing with each other to get more, firms raise wages by an amount dw to a new level, w**, thereby attracting $(\partial S/\partial w)dw$ new workers. That is, having shifted from point 1, the original equilibrium, to point 2 as the result of enrollment increases in the program, the ROE labor market now adjusts to fill some of the vacancies created by that enrollment increase: in doing so, it moves from point 2 to point 3. Thus the net change in employment in the rest of the economy is only de_R, where

$$de_R = -\,dx_e + (\partial S/\partial w)dw$$

while the net change in total reported employment--that is, in the employment-and-training sector plus the ROE-- is de_T, where

$$\begin{aligned} de_T &= de_R + dx = -dx_e + (\partial S/\partial w)dw + dx \\ &= dx_u + dx_n + (\partial S/\partial w)dw \end{aligned}$$

Under the AHEM procedure, however, the total change in reported employment is assumed to be equal to the number of new enrollees who were not employed (i. e., who were either unemployed or not in the labor force) prior to enrollment. In other words, under the AHEM procedure, the estimate of the total change in reported employment is only $d\hat{e}_T$, where

$$d\hat{e}_T = dx_u + dx_n$$

and where, of course, $d\hat{e}_T$ is strictly less than de_T: the AHEM procedure yields a conservative (or, in technical terms, downward-biased) estimate of the actual effect on total employment of an expansion of a Type III program.

All this assumes that the ROE labor market does in fact clear. If this is not the case, then, in general, the downward bias in the AHEM procedure is even greater, since this procedure also ignores the multiplier effects which are associated with the program-expansion-induced increase in effective aggregate demand and the resulting return to market-clearing conditions. To see this in an intuitive way, recall that the D curve of Figure 1 is constructed on the conventional textbook assumption that markets do in fact clear and thus that firms are able to sell all they want to at prevailing prices. Obviously, this curve cannot be used to analyze behavior under non-market-clearing conditions. For a very simple model[3] of the labor market under non-market-clearing conditions,

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[3] See, for example, Barro and Grossman (1975). The model presented here suppresses most of the details to be found in their work, but is entirely adequate for our purposes and contains may of the essential ideas to be found in their much more elaborate treatment.

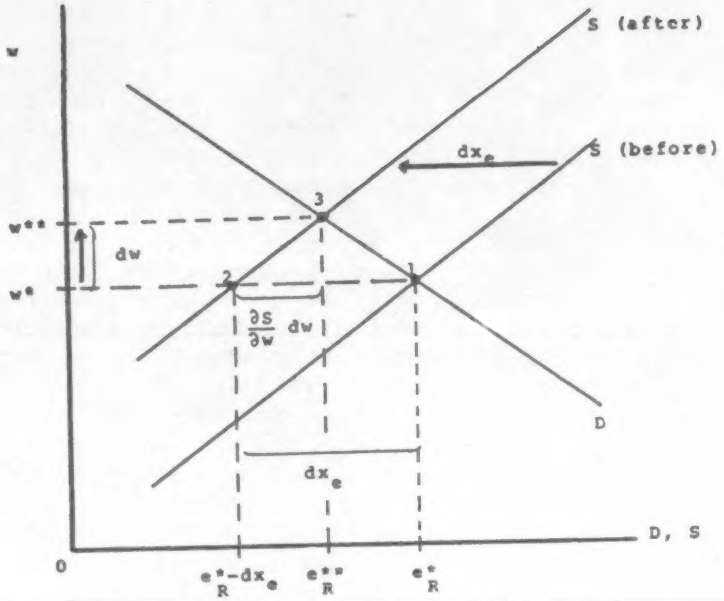

Figure 1. Effect of Type III Program
Under General Market Clearing

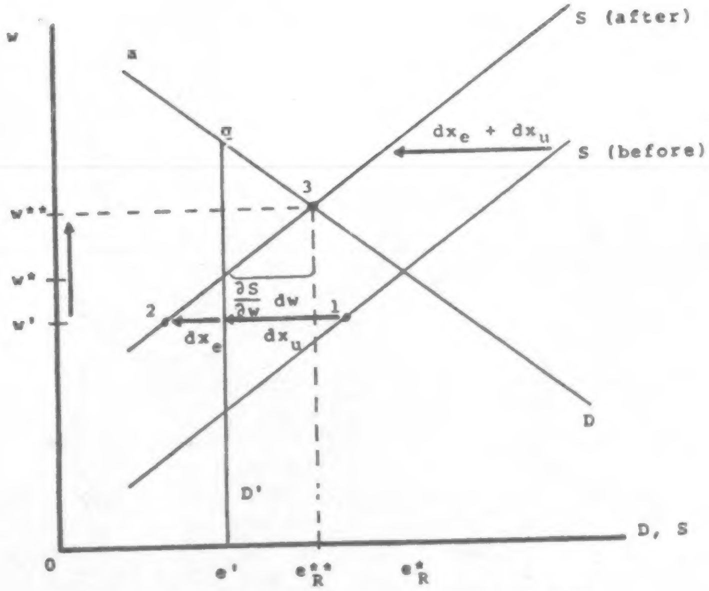

Figure 2. Effect of Type III Program
Under Conditions of Non-Market-Clearing

consider Figure 2. The curves labelled D and S are the same as those of Figure 1--that is, these two schedules represent the demand and supply for labor schedules which would prevail in the ROE if and when firms are satisfied that the labor and commodity markets clear. In this case, the equilibrium real wage would be w* and the equilibrium level of employment would be e*, as before. However, when markets do not clear, e. g., because the aggregate effective demand for commodities falls short of the output of commodities, firms discover that they cannot sell more than some particular amount of output y' which is less than the market-clearing amount y*. Until conditions improve, they therefore will hire at most only e' workers, less than the market-clearing amount e*, because only e' (< e*) workers are needed to produce y' (< y*), the maximum amount of output they are able to sell.

Hence, because the commodity market does not clear and firms are output-constrained, the ROE labor demand curve takes the form of the broken line aqe' shown in Figure 2, implying that no more than e' workers will be hired at any positive wage. It follows that, even if the real wage is less than the "right" level, w*, firms will not hire more than e' workers, simply because when markets do not clear firms will be unable to sell the additional output which any additional workers would produce. By the same token, "failure" of the real wage to fall is not the reason why the economy does not return to its original position, e*.[4] Of course, competition between workers may drive the real wage down to some extent, though, since this will have no effect on the effective demand for labor, e', nothing will happen to employment in consequence. Rather, the workers must compete for a fixed number of jobs, e'.

In any event, suppose that, at present, the real wage is some amount w' as shown in Figure 2; that the government decided to foster a return to general market-clearing conditions by expanding aggregate effective demand; and that it decides to expand demand by expanding a Type III program. The increase in program enrollment shifts the ROE labor supply schedule S to the left by an amount $dx_e + dx_u$ (i.e., the program enrolls some persons who were employed in the ROE prior to enrollment, and also enrolls some persons who were "involuntarily unemployed" in the ROE labor force prior to enrollment). At the same time, the expansion in aggregate effective demand associated with expansion of the Type III program induces firms to switch from the non-market-clearing demand curve D' back to the market-clearing schedule D. Thus, the ROE labor market moves from point 1, the initial employment position, to point 2 due to the enrollment expansion per se, and then moves from point 2 to point 3 due to the aggregate demand expansion associated with the enrollment expansion.

In this case, of course, the net change in employment in the rest of the economy, de_R, is positive, from e' to e**. (Note that, by construction, $e^{**} - e'$ is equal to $(\partial S/\partial w)dw$, where $dw = w^{**} - w^*$

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4. See, for example, Barro and Grossman (1975, especially pp. 61-62).

as in Figure 1. This puts the conclusion in the sharpest possible way, but, of course, the validity of the conclusion in no way depends on it.) Further, the net change in total reported employment, de_T--that is, the change in the employment-and-training sector plus the change in the rest of the economy--induced by expansion of the program is even greater, i. e.,

$$\begin{aligned} de_T &= de_R + dx = (e^{**} - e') + dx_e + dx_u + dx_n \\ &= dx_u + dx_n + (\partial S/\partial w)dw + dx_e \end{aligned}$$

But the AHEM estimate of the employment effects of this program expansion is still only

$$d\hat{e}_T = dx_u + dx_n$$

So the downward bias of the AHEM estimate, $d\hat{e}_T - de_T$, is even larger in this case--one of adjustment from non-market-clearing conditions--than it was in the previous case, which assumed general market clearing.

Finally, suppose that employment in the ROE is subject to a minimum wage. (The effect of the minimum wage on aggregate employment may not be very large, but its effect on teenage labor markets may be more important.) Precise conclusions as to the magnitude of the downward bias of the AHEM procedure in the presence of a minimum wage must rest on precise assumptions about various other magnitudes, including (i) the extent to which the minimum wage exceeds the equilibrium or market-clearing level, (ii) the extent to which coverage under the minimum wage law in the ROE is less than complete and (iii) the extent to which expansion of employment and training programs attracts enrollees previously employed in the "covered subsector" of the ROE. However, the direction of the bias of AHEM estimates is in no way altered by a minimum wage. Indeed, the downward bias of the AHEM procedure will be at an absolute maximum if all employed persons who enter Type III programs come from the "covered subsector" of the ROE. This is because the effect of the minimum wage is to make the supply of labor to the covered subsector infinitely elastic, so that employers in that subsector will fill all of the vacancies which will arise when some of their employees depart in order to enroll in a Type III program.

This "induced" effect associated with minimum wages will be somewhat smaller if some of the employed persons entering the Type III program come instead from the ROE subsector that is not covered by the minimum wage law (the "uncovered sector," for short); but even in this case there will still be an "induced" effect of some magnitude. In fact, Figures 1 and 2 and the above discussion of their implications may be taken to refer to the limiting case in which all employed persons who enter Type III programs are "recruited" from the uncovered subsector of the ROE, the covered subsector is left undisturbed and the bias in AHEM estimates is therefore at an absolute minimum.

Of course, all these results are simply intuitive partial-equilibrium examples rather than rigorous general-equilibrium comparative-statics proofs, and they do not attempt to explore either statistical effects on variables other than employment (e. g., the unemployment rate) or to examine differential statistical effects on different labor markets (e. g., for youth vs. other persons). Nonetheless, these results are certainly suggestive; and it is possible to derive these and other results on the statistical effects of employment and training programs--both for "disadvantaged" workers (i. e., the "target" or eligible population group) and for the population as a whole--using a formal model of labor markets and simple comparative-statics techniques.[5] For purposes of this Appendix, we content ourselves with simply stating some of these results, in particular the following general proposition:

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[5] Two important assumptions underlying those derivations which pertain to unemployment seem worth mentioning here. First, we assume that an increase in the general level of real wages increases the labor force by less than it increases the "supply of employment" S (i. e., the number of persons who are willing to accept job offers rather than continue to search), and hence that the number of people who wish to continue to search for work rather than accept work falls as the general level of real wages rises. (Quits vary procyclically, but the duration of unemployment falls as the cycle reaches its peak; and it can be argued that these variables reflect search behavior *per se*. To the extent that this is so, we assume that the former effect is dominated by the latter, generating a negative relation between the real wage level and the amount of "search unemployment.") Second, we assume that enrollment opportunities in employment and training programs are rationed, so that the number actually enrolled is an exogenous goverment-determined policy variable. To the extent that admission into such programs depends on labor force status--e. g., on being or having been unemployed--individuals may deliberately change their labor force status in order to improve their chances of admission; however, to simplify the analysis, we assume that the extent of such behavior is negligible. In fact, the assumption that enrollment opportunities are rationed more or less implies this. Individuals who attempt to improve their chances of admission by becoming unemployed trade off a certain loss of earnings against a highly uncertain and--when enrollment opportunities are rationed--presumably rather small increment in the probability of admission. Some may make this trade-off, but, at least as a first approximation, we assume that the aggregate importance of this phenomenon is trivial.

> AHEM estimates of the statistical effects of an expansion of any employment and training program--whether Type I, II or III--are downward-biased, both for "disadvantaged" workers and for the population as a whole.

It is also possible to derive other results which are concerned specifically with the effects of each particular type of program. The results which refer to the statistical effects of Type III programs--which, given the size of these programs, are probably of greatest interest--may be summarized as follows:

> If the government expands enrollment in a Type III program, then:
>
> 1. Both for disadvantaged workers and in the aggregate, reported employment and labor force levels will both rise and the reported unemployment rate will fall.
> 2. Both for disadvantaged workers and in the aggregate, the actual increase in reported employment (the reported labor force) will exceed the number of new enrollees who were not employed (not in the labor force) prior to enrollment. Hence, both for disadvantaged workers and in the aggregate, AHEM estimates understate both the employment and labor force increases attributable to expansion of the program.
> 3. Both for disadvantaged workers and in the aggregate, the difference between the actual increase in reported employment and the number of new enrollees who were not employed prior to enrollment will exceed the difference between the actual increase in the reported labor force and the number of new enrollees who were not in the labor force prior to enrollment. Hence, both for disadvantaged workers and in the aggregate, AHEM estimates understate the reduction in the unemployment rate attributable to expansion of the program.

APPENDIX B
DERIVATION OF AHEM ESTIMATES

In Tables 4-7 of the text we present AHEM estimates of the levels of employment, unemployment, etc., which would have prevailed during 1963-1976 in the absence of employment and training programs. These estimates are derived in the following manner.

First, $\hat{E}$, the level of employment which would prevail in the absence of the programs, is assumed to be given by

$$(1)\qquad \hat{E} = E - (0.2-e_{WIN})X_{WIN} + \sum_{q} X_{Iq}e_{Iq} + \sum_{r} X_{IIr}e_{IIr} - \sum_{s} X_{IIIs}(1-e_{IIIs})$$

where E is the level of aggregate employment recorded in official statistics, e_{WIN} is the fraction of enrollees in WIN who were employed prior to enrollment, e_{pz} is the fraction of enrollees in the zth Type-p program who were employed prior to enrollment, X_{WIN} is total WIN enrollment and X_{pz} is total enrollment in the zth Type-p program.[1] Likewise, the number of persons who would be in the aggregate labor force in the absence of the programs is

$$(2)\qquad \hat{L} = L - X_{WIN}(1-\ell_{WIN}) + \sum_{q} X_{Iq}\ell_{Iq} - \sum_{r} X_{IIr}(1-\ell_{IIr}) - \sum_{s} X_{IIIr}(1-\ell_{IIIr})$$

where L is the number of persons in the labor force as recorded in official statistics, ℓ_{WIN} is the fraction of enrollees in WIN who were in the labor force prior to enrollment and ℓ_{pz} is the fraction of enrollees in the zth Type-P program who were in the labor force prior to enrollment. Together with official data on L and E, data on overall values of X, e and ℓ for each program[2] lead directly to a measure of the aggregate unemployment rate which would prevail in the absence of the programs, $\hat{u}$, where

$$(3)\qquad \hat{u} = (\hat{L}-\hat{E})/\hat{L}$$

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1. Note that (1) assumes that 20% of all WIN enrollees are in on-the-job training and similar activities which would cause them to be classified as " employed" by CPS interviewers. Here we follow Small (1972), who, in the absence of reliable data on the composition of WIN enrollees by type of activity, adopted the same assumption. (The limited data available suggest that the 20% assumption is not unreasonable, though it is not possible to be sure whether it is equally appropriate for each year of the WIN and Work Experience programs.)

2. In most cases we have been able to use actual data on X for each

Recall yet again that $\hat{u}$, $\hat{L}$ and $\hat{E}$ are all conservative estimates of the "true" effects of abandoning employment and training programs: that is, $\hat{u}$ is a lower bound on the true unemployment rate which would prevail in the absence of the programs, while both $\hat{L}$ and $\hat{E}$ are upper bounds. This is because, as noted in Part II and Appendix A, the AHEM procedure ignores induced effects (on employment in the rest-of-the-economy sector and via the multiplier) arising from abandonment of the programs. Finally, given data on the civilian noninstitutional population age sixteen and over, P, one may compute estimates of the employment-population ratio and labor force participation rate which would obtain in the absence of the programs, i. e.,

(4) $\hat{\eta} = \hat{E}/P$

(5) $\hat{\lambda} = \hat{L}/P$

respectively.

Given data on the employment, E_y, labor force, L_y, and population, P_y, of persons age 16-19, one could easily use expressions analogous to (1) - (5) above to compute similar estimates for the youth labor force, if data on program enrollments for youths and the composition of young enrollees by previous labor force status--that is, X, e and ℓ--were available. Unfortunately, data on e and ℓ for persons age sixteen to nineteen (or for any other particular age group) are almost never available. Instead, therefore, we are forced to construct estimates of the direct effects of employment and training programs on youth by assuming that the composition of young enrollees by pre-enrollment labor force status was the same as that of all enrollees. Hence, we compute estimates $\hat{E}_y$, $\hat{L}_y$, $\hat{u}_y$, $\hat{\eta}_y$ and $\hat{\lambda}_y$ for youth, analogous to E, L, u, $\hat{\eta}$ and $\hat{\lambda}$, respectively, for the overall population, by inserting E_y and L_y in place of E and L in (1) and (2), respectively, and then multiplying each total program enrollment figure X_{pz} by y_{pz}, the fraction of enrollees in the zth Type-p program who were between sixteen and nineteen years of age.

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program (but see n. 2 in the text above). Data on e, ℓ and (see below) y for each program are also usually available, but in some cases only for a few selected years. Here, too, we have had to make a variety of assumptions and estimates when the requisite information was unavailable. For purposes of the present paper, suffice it to say that in this case, as in most other empirical work, the results are subject to an unknown, and probably unknowable, degree of measurement error.

SOCIAL DEVELOPMENT AND EMPLOYMENT: AN EVALUATION OF THE OAKLAND YOUTH WORK EXPERIENCE PROGRAM

By: Delbert S. Elliott and Brian A. Knowles

ABSTRACT

This report on the evaluation of the Oakland Youth Work Experience Program presents data from an experimental study incorporating a pretest and two follow-up interviews occurring at six-month intervals after the pretest. For most participants, these data represent the attitudes and perceptions of youth after six months and one year in the program but prior to entry into regular jobs or work careers. The results, therefore, are limited to this short-term impact of the program and may reveal little about its impact following termination from the program or during a subsequent work career.

In general, there was no empirical evidence of favorable program impact on participants (experimentals) during the first six-month evaluation period, i.e., there were no significant differences favoring experimentals on any of the twelve impact measures at the first follow-up. There was limited evidence that participation for a full year had some beneficial effects for experimental respondents. In particular, Powerlessness was found to decline between the first and second follow-ups and Self-Esteem appeared to increase between the pretest and the second follow-up.

In general, control respondents showed little change during the first six-month evaluation period and appeared to show some evidence of unfavorable change by the time of the second follow-up, particularly an increase in negative Parent/Child Relationships.

A large proportion of controls reported some work experience during both evaluation periods. About 75% worked during the first evaluation period and about 50% did so during the second period. Program participants did especially well when compared only with controls who did not work, primarily because the latter showed consistent negative change. Controls who did work did at least as well as experimental respondents. For both program participants and controls, favorable change on the impact scales was systematically related to their perceived satisfaction with their jobs.

Tests of the theoretical model upon which the evaluation was based revealed substantial support. Changes on the impact variables were predictive of changes in Self-Reported Delinquency.

The results from the general analysis were somewhat disappointing from the perspective of the program. There was no evidence that participation in the YWEP resulted in positive change relative to no participation. In the restricted comparisons involving only experimentals with matched controls who did not work, the program (i.e., work) appeared to have some positive effects, although this was primarily the result of declining levels on the various measures for controls rather than gains for experimentals. There was thus some support for the positive impact of work per se as suggested in the theoretical model. It must also be anticipated that some of the benefits of program participation may yet

be realized. As of the time of the final follow-ups, most of the youth had been unable to make practical use of their training and experience.

INTRODUCTION

A review of published research in the area of youth employment reveals numerous studies examining the effects of personality and social characteristics of individuals upon their work choices, career patterns, job satisfaction, absenteeism, morale, and so forth. Likewise, much research has examined the effect of participation in Manpower programs on subsequent earnings (see Rawlins, 1972 for a review). It is interesting to note, however, that few studies have examined the impact of employment upon the social development of youth. Shore (1972), in his review of studies evaluating this latter relationship, cites only five empirical studies and concludes that little is known about how particular work experiences impact upon the developmental process. While several additional studies could be included in a current review (Hackler, 1966; Robins, 1969 and 1974; Walther and Magnusson, 1969; Ahlstrom and Harighurst, 1971; Jeffery and Jeffery, 1970), we still know relatively little about the impact of employment on the social development of youth.

The few studies focusing upon the relationship between work and social development have failed to provide any compelling evidence for the postulated positive effects of work on the attitudes, perceptions, goals or values of youth. It is not the case that all studies have reported negative findings (see, for example, Gartner, et al., 1971; Massimo and Shore, 1963; Walther and Magnusson, 1969; Engel, et al., 1967; Kohen and Parnes, 1971), but rather that the theoretical and methodological adequacy of the research casts doubt upon the validity or generality of these findings whether positive or negative with respect to the postulated impact of work on social development. Methodologically, sample sizes were often small, few studies employed control groups, and none involved an experimental design with random assignment.[1] Given these limitations and the inconsistency in findings, little can be concluded regarding the impact of work on youth development.

Of equal importance in the evaluation of past research is the almost total absence of any explicit theoretical rationale which ought to guide the design and implementation of the work program and link specific program components to evaluation outcomes or objectives. In the absence of specific postulated outcomes based upon some theoretical model or perspective, it is difficult to interpret the empirical findings of evaluation studies. In most instances, a very broad range of "possible," "hoped for" outcomes are identified or implied by program personnel with a forced post hoc rationale, or a general search for "positive" outcomes of any kind is initiated.

In the recent past, the rationale or justification for work programs has focused increasingly upon a reduction in crime or delinquency as the general program objective, but the theoretical connection between involvement in a work program and delinquent behavior is seldom explicit, or involves very crude notions such as the assertion that work keeps youth occupied, reducing the time that is available for engaging in delinquent behavior. Apart from the obvious possibility that the work setting may afford new opportunities for crime, studies utilizing this theoretical rationale seldom make any deliberate attempt in the structure of the program to maximize time involvement, the critical intervening variable in the connection between work and delinquency reduction; and given the very limited time involvement typically required of participating youth, there is no reasonable justification for assuming that the program should be effective in reducing delinquent behavior. In most instances, these intervening variables involve such things as attitudes toward the norms or authority, goals or aspirations, perceived opportunities, and values, i.e., social development variables.

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[1] The Robin's (1969, 1974) study is presented as involving an experimental design with random assignment, but does not achieve this objective. The random assignment involved youth on a waiting list who were eligible for participation in the In-School NYC Program (Experimental Group 1). These persons were randomly assigned to a Summer Only Program (Experimental Group 2) and the Control Group. No matching prior to assignment was involved, and the Control Group constitutes an adequate comparison group only for the Summer Only Experimentals. Yet, the major comparisons and conclusions involve the In-School Experimentals. It is also the case that the Initial (pretreatment) measures for the In-School Group occurred sometime after their entry into the program, not before. There was also a serious loss of cases across time, with no documentation on the possible bias this loss might have on the results presented. Nevertheless, this study is one of the better studies available on the impact of work on attitudes, perceptions, and behavior (including police contacts for delinquent behavior).

Finally, evaluation studies utilizing reduction in delinquency as the program objective have uniformly failed to measure delinquency in a way which is consistent with their theoretical rationale (even though crude). With few exceptions, work experience is postulated to impact upon delinquent behavior, yet evaluation studies consistently utilize police contacts/arrests as the measure of delinquency. A reduction of police arrests may or may not reflect an actual reduction in delinquent activity; likewise, an increase in arrests does not necessarily reflect an actual increase in delinquent behavior.

Given the theoretical and methodological difficulties noted above, the present state of knowledge regarding the impact of employment upon the social development of youth continues to be very limited. The study described here involved a deliberate attempt to deal with these deficiencies in both the structure and rationale for work experience programs and the methodological adequacy of the evaluation.

THE OAKLAND YOUTH WORK EXPERIENCE PROGRAM[2]

The Oakland Youth Work Experience Program (YWEP) was based conceptually upon a theoretical model developed by the Office of Youth Development (OYD), DHEW and included selected elements of both the In- and Out-of-School Neighborhood Youth Corps (NYC) program and the Vocational Exploration in the Private Sector (VEPS) program. It was developed as a model program for the U.S. Department of Labor and the initial contract included funds for a comprehensive, long range evaluation of its effectiveness in realizing its stated youth development goals. Only a brief description of the conceptual model and the actual program will be presented here.[3]

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[2] The National Office for Social Responsibility (NOSR) developed this program as a model youth work experience program based on the OYD strategy for youth development (Gemignani, 1971) under a contract with the U.S. Department of Labor, Offender Rehabilitation Division (No. 99-4-0009-013).

The basic premise of the OYD strategy for youth development is that a satisfactory pattern of physical, social and psychological development represents the most effective deterrent to delinquent behavior. An analysis of the developmental processes which result in normative, constructive, prosocial behavior patterns for most youth suggested three major patterns: (1) law-abiding youth are involved in meaningful, legitimate, and satisfying social roles and perceive that they have access to similar roles as adults; (2) these young people believe that their parents, friends, teachers and employers view them positively and they view themselves positively; and (3) they are accepted and integrated into their families and communities, and perceive a high degree of control over both their present and future lives. The development model thus incorporates these three elements as basic to a satisfactory process of youth development and postulates that they insulate youth from involvement in serious or repetitive patterns of delinquent behavior. The youth development model is presented schematically in Figure 1.

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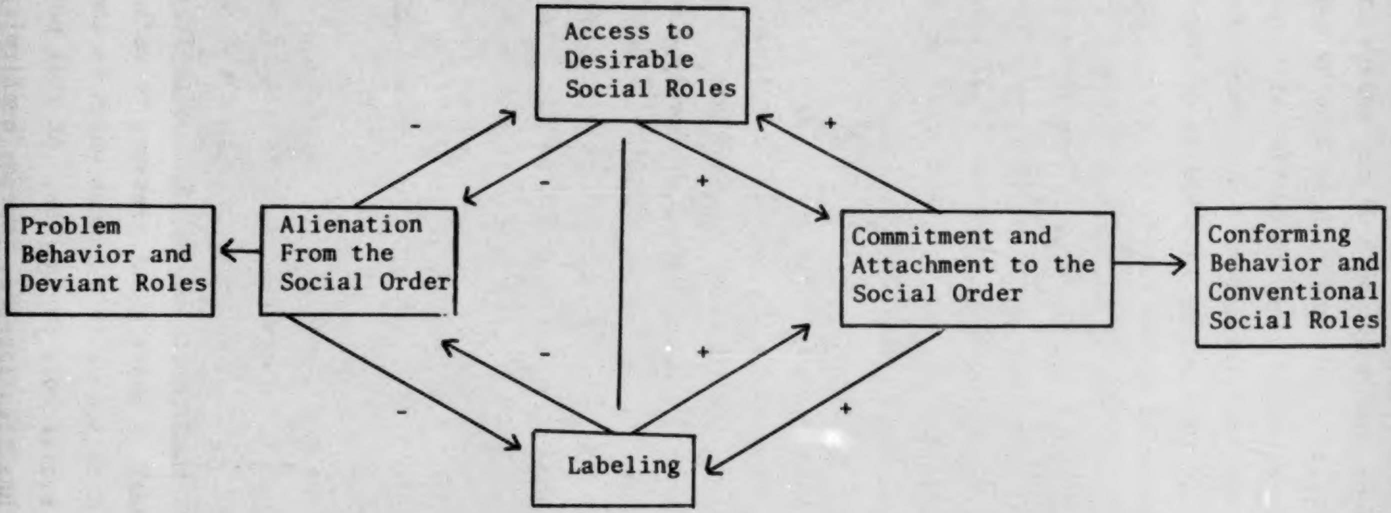
[3] For a more detailed description of the theoretical model, see Elliott, et al., 1976; Brennan and Huizinga, 1976; CAR, 1971; Polk and Kobrin, 1972; Gemignani, 1971. For a detailed description of the Program, see NOSR, 1976.

FIGURE 1


Access to Desirable Social Roles
Problem Behavior and Deviant Roles
Alienation From the Social Order
Commitment and Attachment to the Social Order
Conforming Behavior and Conventional Social Roles
Labeling
-
-
+
+
-
+
-
+

+ = high access, positive labeling

- = low access, negative labeling

Desirable Social Roles--A Stake in Conformity

One of the reasons that many youth do not engage in deviant behavior is that they have little to gain and much to lose by doing so. Youth who are loved and respected at home, successful at school, comfortable among their friends and look forward to a worthwhile work career put all of these in jeopardy if they become involved in delinquent activities. Participation in meaningful social roles, therefore, serves to insulate youth from involvement in delinquent behavior by providing them with a stake in conventional roles and behavior. What is notable about these positive social roles is that they are provided by a handful of institutions--primarily the family, school and work. In large measure, then, we look to these institutions to ensure that youth are provided the opportunity to achieve desirable social roles.

In practice, most youth do experience meaningful involvement and a favorable course of development within these institutional settings. Yet for some youth, these same social contexts systematically limit or deny them access to desirable roles: they are not loved and respected at home, are not successful at school and do not hold much hope for rewarding work careers. Consequently, they may feel that they have no stake in conformity, and that they place little or nothing in jeopardy if they experiment with illegal forms of behavior. In fact, certain types of criminal activity may offer the only hope they see for financial and material rewards.

Negative Labeling

Once an individual is tagged or defined as a "troublemaker," "a truant" or "a delinquent" others tend to view him as such and to treat him according to this label. When parents, teachers and friends and employers begin to use such labels as a basis for their interaction with a person, the individual is under great pressure to define himself/herself in a similar way and to behave in a manner which is consistent with this definition and the social role it implies. At this point, the individual has become what he has been labeled, thereby confirming the original definition. The fact that this was a self-fulfilling prophecy, and that those participating in the labeling process contributed to the youth's becoming a troublemaker, truant or delinquent, often goes unnoticed.

Of particular concern are the negative labeling processes which occur in the school, at work and in the juvenile justice system. Because the negative labels employed in these institutional settings are more visible and formal than those generated elsewhere, they tend to have a greater effect on an individual's life. Being defined as a troublemaker at school, for example, has an impact not only on the courses one takes (vocational as opposed to college bound) but also on participation in extracurricular activities, assignment to particular teachers, and even seating locations within the classroom--all of which impinge upon an individual's future educational and occupational opportunities.

The application of the label "juvenile delinquent" to youth processed in the juvenile justice system has similar negative effects. Often these youth find themselves cut off from contact with conventional, law-abiding youth and thrust into association with youth who are committed to delinquent roles; their future educational and occupational opportunities are diminished by their having an official record; and friends, parents, teachers and significant others in their lives begin to view them as being "different" and to respond to them selectively in terms of the delinquent label. The labeling process becomes complete when, as a consequence of this new definition and the resultant expectations of others, the youth comes to view himself as a delinquent person.

The problem with such institutional labeling is that it is often discriminatory and inappropriate, dictated by stereotypic attributes or system requirements rather than by a careful evaluation of an individual's abilities, values and commitment to particular kinds of behavior. The danger of labeling, then, lies in the very real possibility that while the youth has not make any commitment to the specific behavior which generated the label, the labeling process itself may serve to reinforce the very behavior which was viewed as being objectionable.

Alienation

Limited access to meaningful, responsible and satisfying social roles and negative labeling result primarily from child-rearing practices at home and institutional processing procedures at school, work and in the juvenile justice system. Alienation represents a type of individual response to such experiences within these institutional settings. Difficulties at home, failure at school and little hope for a rewarding work career result in many youth feeling defeated and rejected. They feel that they have no stake in these institutions and, consequently, that they have no reason to be committed to the appropriate rules of conduct within these settings. In its broadest sense, alienation denotes a destruction of one's affective ties to the social order: a weakening of one's feelings that he or she belongs and is a part of the family, the school or the community; that he or she is morally obligated to obey the rules; or that there are any positive rewards for striving to do what is right. In essence, then, alienation is a rejection of one's rejectors--a psychological disengagement from institutions and the general social order which they support.

The significance of this type of response to negative labeling and limited access to desirable social roles at home, school and work is that it constitutes a psychological form of "permission" to ignore or violate the rules. If one feels that he or she doesn't belong, has no possibility of realizing any rewards from continued involvement and, ultimately, has no moral obligation to those in authority in these institutions, then he or she is free to engage in any forms of behavior which are personally gratifying. There is no investment and, hence, nothing to lose.

The model depicted in Figure 1 is a dynamic model in which feedback relations reinforce the basic processes. On the deviant side of the model, negative labeling and limited opportunities lead to alienation which in turn accentuates and compounds the negative experiences. Ultimately, this leads to deviant roles and a dependence upon illegitimate opportunities or means for attaining social rewards. The objective of youth development programs such as the Oakland Youth Work Experience

Program is to intervene in and disrupt the process by increasing access to desirable social roles, by reducing negative labeling and alienation, and ultimately by reinforcing conforming or prosocial behavior patterns.[4]

THE YWEP PROGRAM

The goals of the project are based upon the youth development strategy discussed above. The intended program outcomes are thus: (1) to increase youth's access to socially acceptable and meaningful roles both at school and in relation to present and future work roles; (2) to reduce negative labeling of youth at home, school and work; (3) to reduce feelings of alienation and rejection and, as a consequence, (4) to reduce involvement in delinquent behavior.

The target population for the Oakland YWEP involved delinquent and pre-delinquent youth aged sixteen to eighteen. Delinquent youth were those who had been adjudicated as such by official court action. Pre-delinquent youth were defined as those whose behavior might ultimately lead to court action if unchecked. In addition, it was necessary that program participants meet poverty level guidelines as specified by the Office of Management and Budget.[5]

Three methods were used to obtain applicants for the program. First, the county probation department was asked for referrals of delinquent youth. Second, a number of community agencies such as schools, recreation departments, churches, health facilities, and others were asked for referrals of predelinquent youth. And third, all of the available public media were used to attract youth (especially dropouts) not known to existing agencies. Since there were many more applicants than positions available, a selection procedure (described in a later section) was developed to determine which youth were to be admitted to the program.

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[4] This model is derived conceptually from several longstanding theoretical perspectives on delinquency, particularly opportunity theory (Cloward and Ohlin, 1960; Elliott and Voss, 1974), control theory (Hirschi, 1969) and labeling theory (Lemert, 1951; Becker, 1963; Schur, 1971 and 1975).

[5] In fact, the proportion of adjudicated delinquents among participants and controls was small (less than 10%).

At the start of the program, special teams were formed consisting of twenty-five youth participants, a member of the project staff and assigned volunteers. The intent of the teams was to develop a greater intimacy for the program to provide more special attention to the specific needs of each participant and provide a positive social setting and group support for each participant. The team worked together during orientation to emphasize continuing self-assessment and individual and team responsibility for decision making.

In addition to providing work experience, the Oakland YWEP program also attempted to meet other basic needs of its participants including the provision for improvement of basic educational skills and requirements necessary in the world of work. Participants in the Oakland project were given classroom training designed to fill gaps in their formal training. Following an assessment of each participant's mathematics, English, and reading ability, an individualized educational plan was developed. The plans included participation in accredited programs offered by area high schools, adult education programs, public schools, a street academy, and a local community college. The purposes of educational plans were to give youth the opportunity to participate in a curriculum designed to be relevant to career possibilies, to increase their perception of career opportunities, and to improve their chances of work success, while obtaining educational credits toward their program participation.

The work stations that were made available to youth participants represented a wide variety of occupations offering career opportunities and skill development. In general, they were intended to increase perception of the realities of the work world and to provide meaningful, satisfying work experiences. More specifically, the objectives of work experience were (1) to provide experience in occupations in short supply and which, if possible, relate to the occupational goals and capabilities of the participants; (2) to provide a range of work experiences from general exploratory work to beginning and intermediate skill levels to advanced skills; (3) to provide opportunities for maximum skill acquisition commensurate with participant ability and taking account of time limitations; and (4) to provide an opportunity to experience new kinds of relationships with others in a work role, aided by advice of counselors, site supervisors, and participant teams.

The final phase of the program involved intensive preparation related to a participant's placement goals. Youth were given assistance and training in the preparation of resumes, applications, and entrance tests. If the youth desired job placement, a wide range of full-time employment opportunities were explored and every effort was made to place the youth in a permanent job. Others were motivated toward careers requiring further specific skill acquisition, and contracts with the appropriate institutions were established for the youth. For those who developed an interest in completing formal educational goals, assistance was given in terms of curriculum development and sources of financial assistance. Finally, information and orientation were provided for those who became interested in enlistment in one of the military services.

In short, participating youth were prepared to compete more effectively for work roles and provided some first hand experience in positive work roles through a comprehensive program involving need assessment, educational training, work experience, and finally career placement. In the process, youth completed approximately 675 hours of paid participation about equally divided between classroom training and work experience.

PROGRAM EVALUATION

The evaluation was intended to provide an assessment of the effects of the YWEP experience on participating youth. As the Oakland program had been organized around a broad strategy for the development of prosocial behavior in disadvantaged delinquent and predelinquent youth, the focus of the evaluation was derived primarily from that conceptual model. Thus, the variables of the conceptual model described above and the relationships among them were examined in detail.

Research Design

The research design employed for the Oakland YWEP evaluation is depicted in Figure 2. It is a classic experimental design with matched experimental and control groups and both pre- and post-tests on the dependent variables. The experimental treatment in the present research is participation in the work experience program.

As can be seen in Figure 2, one post-test was planned at six months after entry and a second post-test was planned at twelve months after entry. Following six months in the work experience program, experimental participants were selected for one of three alternate paths. That is, they were: (1) continued in the work experience program for an additional six months, (2) admitted to an Action Program involving public sector jobs, or (3) terminated from the work program.

In the notation of Campbell and Stanley (1966) the design would appear as:

$$\begin{array}{ccccc}
\underline{t_1} & & \underline{t_2} & & \underline{t_3} \\
0_1 & X & 0_2 & X & 0_3 \\
0_4 & X & 0_5 & A & 0_6 \\
0_7 & X & 0_8 & & 0_9 \\
0_{10} & & 0_{11} & & 0_{12}
\end{array}$$

where $\underline{X}$ is the work experience program described in detail above, $\underline{A}$ is the Action work program, and the 0_i are the various administrations of the Impact Questionnaire; t_1 is May-June, 1975; t_2 is December-January, 1976; and t_3 is June-July, 1976.

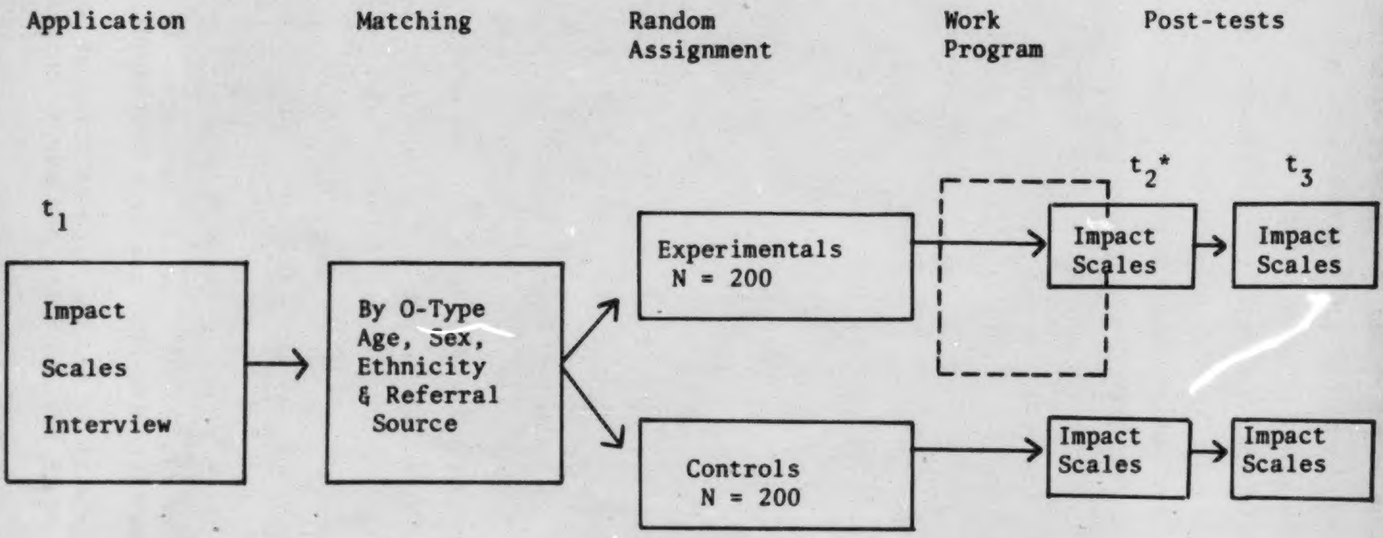
Participant Selection and Assignment

As described earlier, applicants for the program were solicited from several sources including referrals from the probation department, from other public and private agencies, and through advertisements in the mass media. If a youth met eligibility requirements (age, family income, and residence) he was asked to complete an application. Youth submitting an application were told that there would likely be many more applicants

FIGURE 2

OAKLAND YOUTH WORK EXPERIENCE PROGRAM

RESEARCH DESIGN



* $t_2 - t_1$ = 6 months

$t_3 - t_2$ = 6 months

than positions in the program. Those accepted would, therefore, be randomly selected by computer and the chances of being selected were about one in three. About 600 applications were received.

Each youth was given application and parental permission forms. When these were returned, the Impact Questionnaire (evaluation instrument) was administered. This questionnaire includes a number of items concerning social and demographic background in addition to twelve social psychological scales.

The Impact Questionnaire was self-administered in a room with as many as ten youths at one time. Applicants were specifically assured that their responses to the evaluation instrument would in no way affect their chances of selection for the program. Staff members were present throughout to answer questions.[6]

Using a typological analysis procedure, youth were matched in pairs. The members of each pair were highly similar on all twelve scale scores and were identical in terms of age, sex, ethnicity, and referral source (probation referral vs. other source). By this procedure, 202 matched pairs were obtained. Each pair was then split randomly, one member being assigned to the experimental group and one to the control group. The experimental group was then admitted to the work program.

Impact Scales

Before proceding to the analysis, a brief description of each of the twelve impact scales is presented.[7]

1. Access to desirable social roles. Three scales were used to assess this component:

a. Perceived access to desirable educational roles is a five-item scale intended to measure perceived likelihood of achieving educational goals. A respondent is first asked how far he would like to go in school and then is asked the five questions concerning the probability of attaining this or similar goals. The higher a person's score on this scale, the higher is his perceived chance of obtaining the desired educational goal.

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[6] When necessary, a staff member was present who was fluent in both English and the respondent's native language. In about twenty cases, the entire questionnaire was read to a respondent.

[7] The actual scale items and the documentation of psychometric properties of each scale are available and may be obtained by writing to the authors.

b. Perceived access to desirable occupational roles is a six-item scale intended to measure perceived likelihood of achieving occupational goals. Again, a respondent is first asked what kind of job he would like as an adult and then is asked the six questions relating to the probability that this or similar goals will be reached. A higher score on this scale reflects a higher degree of perceived access to occupational goals.

c. Parental/child roles is a five-item scale measuring a youth's belief that his parents are interested in him and would help him if he needed it. The scale represents a measure of access to desirable social roles for youth in the home. The lower a respondent's score on this scale, the better is his perceived social role in his family.

2. Negative labeling. Four scales were used to assess different dimensions of perceived negative labeling:

a.-c. The content of these three perceived negative labeling scales is identical, but the reference point varies (parent, teacher, and peers). In each case, the scale is a six-item measure of perceived negative or antisocial categorization by significant others. The scale consists of six semantic differential dimensions with a seven-point continuum. The respondent is to indicate where on each dimension he feels he is seen by his parents (or teachers or peers). A higher score on these scales implies a higher degree of perceived negative labeling.

d. Self-esteem is measured with a ten-item scale similar to Rosenberg's (1965) scale. It assesses the extent to which a youth values, accepts, and respects himself. The focus is on self-acceptance. A higher score on this scale reflects a higher level of self-esteem.

3. Alienation. This component of the conceptual model was assessed with three scales, each measuring a different dimension of alienation:

a. Normlessness is measured with a six-item scale designed to assess the extent to which an individual believes that socially unapproved behaviors are required to achieve given goals. A higher score indicates a greater level of normlessness.

b. Powerlessness, a twenty-one-item scale, is a version of a scale developed by Nowicki and Strickland (1973). This scale measures a youth's sense of control over events in his life, his feelings of power over activities and circumstances which affect him. A higher score implies a higher degree of powerlessness.

c. Societal estrangement is assessed with a sixteen-item scale measuring the extent to which a youth feels estranged or alienated from the larger society. The present scale is a modified version of a scale of anomie developed by McClosky and Schaar (1963). The goal of the modifications was to make the scale more suitable to youth. A high score reflects a high degree of societal estrangement.

4. Normative pressure from peers. This is an eight-item scale intended to measure the extent of pressure towards conforming or deviant behavior felt by a youth from his friendship group. It reflects the type of peer group environment in which the individual participates and indirectly reflects his social role in the larger adolescent/peer culture. A higher score on this scale reflects a higher perceived pressure from peers to be deviant.

5. Self-reported delinquency. One scale was used to measure participation in delinquent roles. This is a 19-item scale of self-reported delinquency. The scale is an adaptation of the Nye-Short (1957) Delinquency Checklist. The higher one's score on this scale, the higher the amount of delinquency reported.

ANALYSIS--IMPACT ON YOUTH

1. Initial Comparisons

The primary analysis utilized in the evaluation of the Oakland YWEP involved simple t-tests comparing the experimental and control groups. Statistical tests comparing experimental and control scale scores at the first administration of the Impact Questionnaire revealed no significant differences. This was to be expected since these groups were matched at that time; nevertheless, the tests verified the initial assignment process. Since there were no differences at time 1, experimental-control comparisons at subsequent times were made directly on the raw scores. That is, it was unnecessary to compute gain scores or rely on analysis of covariance.

2. First Follow-up Comparisons

Six months after the initial administration, the first follow-up Impact Questionnaire was administered. The timing of this post measure coincided with the completion of the participants' initial six months work experience program and the administration of the interview schedule was included as part of a general exit interview for all experimentals. For controls, personal interviews were arranged, in which controls were asked to come to the project office and complete the questionnaire. They were offered a $2.50 payment as an incentive to complete this follow-up schedule. For experimental youth, the questionnaire was identical to that administered at the beginning. For the control group, a number of items were added for the first follow-up. These additional items related to possible work experiences occurring since the youth applied to the project so as to allow for the control of this potentially contaminating influence on experimental-control comparisons. Overall, 189 of the 202 experimentals (94%) completed the first follow-up interview schedule compared to 152 of the 202 controls (75%).

The first analysis undertaken involved a test for selective loss of either experimental or control participants. Statistical tests comparing the initial scores of the thirteen experimental cases who were lost at time 2 with the corresponding scores of the 189 respondents who were retained revealed no significant differences (t-tests). On only one scale (Access to Educational Roles) did the difference even approach conventional levels of significance.

The analysis comparing the initial scores of the 50 control cases who were lost at time 2 with the corresponding scores of the 152 cases that were retained revealed several significant differences. Respondents who were lost at time 2 were lower on both Access to Education Roles and Access to Occupational Roles and higher on Negative Labeling by Peers.

Overall, there were relatively few differences found here indicating selective mortality. Nevertheless, the three differences found among the control respondents all tended to favor those who were retained at time 2. That is, those who were retained had more desirable scores at time 1. The possibility of a slightly biased control sample must be accepted. For t-tests comparing experimentals and controls, the effect of this bias is in the direction of making the tests more conservative.

The next set of analyses was intended to test for changes from time 1 to time 2 in either the experimental or control groups. For experimental cases who were interviewed at both times, four significant differences were obtained over this six month pre-post period. On Normlessness, Access to Occupational Roles, Negative Labeling by Peers and Self-Reported Delinquency, scores increased from time 1 to time 2. Only one of these, the increase in Access to Occupational Roles, can be regarded as a favorable change. For the control cases who were interviewed at both times, only one scale (Negative Labeling by Peers) showed significant change (an increase) from time 1 to time 2. In general, both groups evidenced some negative change on perceived labeling by peers across time. While the experimental group reported an increase in perceived access to occupational goals, they also reported more normlessness and delinquency.

Next, the scores of experimental and control repondents were compared at time 2. For this analysis, only matched pairs at time 2 were included. There were 144 pairs. The results of this comparison are presented in Table 1. Only two significant differences were found, both favoring the

TABLE 1

COMPARISON OF TIME 2 SCALE MEANS FOR EXPERIMENTAL AND CONTROL CASES MATCHED AT TIME 2

Scale	N	Group	$\bar{X}_2$	Direction of Change from t_1	t-score	P
Normlessness	142	Experimental	12.24	+	.40	NS
		Control	12.11	-		
Societal Estrangement	143	Experimental	38.19	+	2.46	<.05
		Control	36.60	-		
Powerlessness	143	Experimental	28.59	+	1.44	NS
		Control	27.98	-		
Access to Educational Roles	143	Experimental	11.95	+	-.31	NS
		Control	12.02	+		
Access to Occupational Roles	143	Experimental	13.54	+	1.37	NS
		Control	13.16	o		
Negative Labeling/ Parents	130	Experimental	16.98	+	.04	NS
		Control	16.95	+		
Negative Labeling/ Peers	130	Experimental	17.42	+	-.64	NS
		Control	17.95	+		
Negative Labeling/ Teachers	126	Experimental	16.62	+	.34	NS
		Control	16.32	+		
Self-Reported Delinquency	143	Experimental	23.46	+	1.57	NS
		Control	22.45	-		
Self-Esteem	143	Experimental	31.57	+	-.26	NS
		Control	31.68	+		
Normative Pressure	142	Experimental	13.68	+	.67	NS
		Control	13.44	-		
Parental/Child Roles	140	Experimental	8.28	+	2.47	<.05
		Control	7.64	-		

control group. Experimental respondents scored higher on both Societal Estrangement and Parental/child role. In both cases, the change from t_1 to t_2 was in opposite directions for experimentals and controls, with experimentals reporting negative gains over time while controls reported positive gains. This explains why significant differences were found between experimentals and controls at t_2 on these variables while neither group alone evidenced significant changes across time on these variables.

In general, the results described above are disappointing. There were only two significant changes for either control or experimental cases, and the majority of nonsignificant changes that occurred also favored the control group. In order to investigate the program impact more closely, several further analyses were performed.

One potential source of change resulting from work experience was the youth's aspiration levels. To test this, all of the foregoing analyses were repeated using the respondents' reported levels of Occupational and Educational Aspiration.[8] There was no significant difference between experimental and control cases at time 2 on either aspiration score.

Further analysis of the control data revealed that many of the control cases, while not participating in the YWEP, did obtain jobs on their own in the period between interviews. With respect to the evaluation of the YWEP program, the fact that controls were also working poses no special problem, since the intended comparison is between youth in the program and youth not having benefit of the program and it is assumed that many youth would have obtained work in the absence of the YWEP. To the extent that the study was also concerned with measuring the impact of work per se, the fact that 75 percent of the control cases found work on their own contaminates the general analysis. The theoretical model suggests that to the extent work involves participation in a desirable social role, it should have some direct effect upon perceived negative labeling and feelings of alienation. To evaluate this postulated impact of work, further analyses were performed on the "pure" cases, those matched experimental and control cases in which the control case did not work at all in the interval. There were thirty-five such pairs with complete data.

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[8] Cases lost at time 2 were compared with cases retained at time 2 with respect to these two variables. For neither experimental cases nor control cases was there any difference between cases lost or retained. Further, the experimental cases showed no change on either Educational or Occupational Aspiration from time 1 to time 2. However, the control cases revealed a significant increase (t=3.18, df=108, $p<.005$) in Educational Aspiration from time 1 to time 2. There was no change in Occupational Aspiration for the control cases.

The experimental cases and control cases were examined separately for changes from time 1 to time 2. The experimental cases showed no significant changes from time 1 to time 2 while the control cases indicated change on two scales over this period. There was a significant decrease on both Normlessness (t=2.38, df=34, p<.05) and Access to Occupational Roles (t=2.67, df=34, p<.05).

The experimental and control cases were also compared on their scores at time 2. Here, three significant differences were found. The experimental cases scored significantly higher at time 2 on Access to Occupational Roles (t=2.28, df=34, p<.05), Educational Aspiration (t=2.90, df=20, p<.01) and Occupational Aspiration (t=2.59, df=20, p<.05). The difference on Access to Occupational Roles resulted from a modest but nonsignificant (p<.10) increase for the experimental cases combined with a significant decrease for the control cases (see above). The differences on Educational and Occupational Aspiration were both the result of nonsignificant differences favoring the experimental group at time 1 combined with a nonsignificant increase by the experimental group and a nonsignificant decrease by the control group. These results suggest that there was some favorable impact associated with work which was masked by the general comparison between experimentals and controls.

For controls and experimentals working, there continued to be no significant differences, i.e., there were no observed program effects.

3. Second Follow-up Comparisons

The second follow-up questionnaire was administered approximately one year after the initial administration, or about six months after the first follow-up. This administration coincided with the completion of the Extension program or the Action program for those participants and was included as part of the exit procedure. Controls and experimental respondents who were terminated after one six-month cycle of YWEP were contacted in their homes and elsewhere and were paid $2.50 to complete the questionnaire. Although a few new scales were added, all of the basic impact scales were repeated from the earlier administrations. In all, 182 (90%) of the 202 original experimental participants completed the second follow-up interview as did 173 (86%) of the 202 control participants.[9]

The first analysis undertaken involved comparisons from t_2 to t_3 for the three experimental groups to determine if there was a differential impact associated with these three options, i.e., an extension of the basic YWEP for a second six months, work with Action for a second six months, or exit from the work program after the first six months. While some statistical differences were observed at t_3, the analysis revealed that they were the result of selection factors, i.e., the differences existed at t_2 and t_1 and could not be attributed to differences in the type of work option assigned. Of equal importance, the failure to find differences between the twelve month work options and the six month option suggests that a more extensive involvement with a work program produced no significant gains.

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[9] As with the first follow-up, a test was made for selective loss of participants from either the experimental or the control groups. That is, t-tests were computed comparing the initial scale scores (t_1) of the 20 experimental respondents who were lost at the second follow-up (t_3) with the initial scores of the 182 respondents who were retained at t_3. No differences were found at the .05 level of significance. Similarly, the initial scores of the 29 control respondents who were lost at the second follow-up were compared with the corresponding scores of the 173 respondents who were interviewed at that time. Again no significant differences were found. From these data, it was concluded that selective mortality was not likely a problem in this research. In fact, the retention of 88% of the total population after a full year is considered quite satisfactory.

The next analysis compared the time 3 scale scores of all experimental cases and their matched controls. Again the comparisons were made for Extension, Action, and Terminated experimental cases. The results are summarized in Table 2. These results are striking primarily for the fact that not a single comparison yielded a statistically significant difference. That is, for none of the three groups was there any difference between the mean scale scores of the experimental cases and their matched control cases after twelve months. It is worth noting that for the Action group, the experimental cases scored more favorably than the control cases on twelve of the fourteen measures although the differences were consistently small. While the through time analysis (t_1-t_2-t_3) for experimentals and controls in each of these treatment groups did show some change, it was slight and resulted in no overall differences between experimentals and controls at t_3 which were significant.

As was the case in examining changes from time 1 to time 2, the above sets of analyses are generally disappointing, yielding few significant results. Again it was found that many of the control cases had found work on their own during this period, and special analyses were undertaken to isolate the effect of work.

For the first set of analyses, "pure cases" were again selected. These were matched pairs of respondents in which the experimental respondent participated either in the Extension or Action program from time 2 to time 3 and the control respondent did not work. There were thirty-eight such pairs. For these pairs at time 2 there were no significant differences on any scales and the differences that existed were uniformly small. The analysis of change from time 2 to 3 for these cases revealed that experimentals (Extension and Action) showed signifi-

TABLE 2

COMPARISON OF TIME 3 SCALE SCORE MEANS FOR EXPERIMENTAL AND CONTROL PAIRS IN EACH EXPERIMENTAL OPTION

Scale	Group	Terminated N=70		Action Option N=30		Extended Option N=53	
		X	t	X	t	X	t
Normlessness	Experimental	12.09	-1.60	10.93	-1.64	12.54	.46
	Control	12.81		11.97		12.32	
Societal Estrangement	Experimental	36.43	-1.12	35.51	- .63	36.85	.76
	Control	37.53		36.48		35.85	
Powerlessness	Experimental	28.81	.65	26.51	- .65	27.25	- .54
	Control	28.47		27.20		27.67	
Access to Educational Roles	Experimental	11.73	.73	12.06	- .64	11.62	- .08
	Control	11.55		12.33		11.64	
Access to Occupational Roles	Experimental	13.47	1.43	13.51	.49	13.30	.61
	Control	12.97		13.20		13.00	
Negative Labeling/ Parents	Experimental	17.01	.30	13.82	-1.17	15.88	- .79
	Control	16.65		15.82		17.14	
Negative Labeling/ Peers	Experimental	17.46	.07	15.31	- .06	17.43	- .71
	Control	17.37		15.42		18.49	
Negative Labeling/ Teachers	Experimental	15.21	- .90	13.37	- .33	14.68	-1.09
	Control	16.23		13.93		16.57	
Self-Reported Delinquency	Experimental	24.20	.17	21.83	-1.38	25.63	1.07
	Control	24.00		23.33		23.99	
Self-Esteem	Experimental	31.14	1.24	33.07	- .35	32.55	1.34
	Control	30.28		33.34		31.29	
Normative Pressure	Experimental	13.89	- .81	13.85	- .08	14.12	.54
	Control	14.22		13.90		13.81	
Parental/Child Roles	Experimental	8.54	-1.39	7.99	- .22	7.69	-1.57
	Control	9.16		8.14		8.48	
Educational Aspiration	Experimental	2.11	-1.03	2.09	- .53	2.30	- .16
	Control	2.32		2.23		2.35	
Occupational Aspiration	Experimental	3.65	1.77	2.59	- .91	2.88	- .56
	Control	2.76		3.06		3.15	

cant changes on both Powerlessness (a decrease) and Access to Educational Roles (also a decrease). Control cases who did not work from time 2 to time 3 yielded a number of significant changes across that time span. In all there were seven significant differences, all unfavorable. That is, Powerlessness, Negative Labeling by Peers and Teachers, Normative Pressure, and Parental/child roles all increased and Access to Educational and Occupational Roles both decreased. In addition, the remaining seven differences, while not significant, were all in an undesirable direction.

The simple comparison of time 3 scores resulted in two significant differences (on Negative Labeling by Peers and by Teachers), both of which favored the experimental group as did all of the remaining non-significant differences.

One other set of analyses was used to examine the importance of working versus not working for the controls. For these analyses, all control cases who worked between time 2 and time 3 were compared with all control cases who did not work, regardless of their associated experimental group. At time 2, only a single significant difference was found (on Normative Pressure, which was higher among those who subsequently did not work). The remaining scales showed no consistent pattern in favoring one group or the other. At time 3, every difference favored the controls who worked, and six differences were statistically significant. The measures yielding significant differences were Societal Estrangement, Powerlessness, Access to Educational Roles, Negative Labeling by Teachers, Normative Pressure, and Parental/child roles.

One final analysis was undertaken to complete the above picture. That is, control respondents who did work between time 2 and time 3 were again compared with their matched experimental cases (Extension or Action groups). At time 3, no significant differences existed between these groups.

4. Job Satisfaction and Impact

As part of the time 3 questionnaire, youth in both control and experimental groups were asked to rate their satisfaction with the job(s) they had between time 2 and time 3. Satisfaction was considered in terms of the work itself (fascinating, boring, creative, challenging, etc.), the supervision (impolite, annoying, tactful, etc.), the pay (adequate, insecure, less than deserved, etc.), promotions (opportunity, frequency, etc.) and coworkers (stimulating, intelligent, lazy, etc.). Scores were obtained on each of these five satisfaction dimensions and a total of all five was also computed. These six scores were then correlated with the raw gain from time 2 to time 3 for each of the fourteen impact measures. Correlations were obtained separately for control respondents and for experimental respondents.

Most of the correlations were quite low, but a number did attain statistical significance. Furthermore, virtually all of the significant correlations were in a direction which reflects the fact that a desirable change on the impact dimensions was related to greater job satisfaction. Among the controls, for example, change on Normlessness correlated -.35 with Satisfaction with the work itself. That is, the greater the satisfaction with intrinsic aspects of one's job, the greater the relative decline in Normlessness from time 2 to time 3.

For controls, satisfaction with the work itself was the satisfaction dimension most often related to change on the impact scales, consistently being associated with favorable change on those scales. The satisfaction dimension least often related to change on the impact scales was satisfaction with promotions. This is reasonable since it would be much less salient in the six month period of interest than any of the other dimensions, all of which would be manifest virtually every day.

Several departures from the general pattern should also be noted, First, increased Satisfaction with pay was associated with a relative increase in Normlessness ($r = .18$). Similarly, Satisfaction with promotions was associated with increased Negative Labeling by Peers ($r = .23$). And third, Satisfaction with pay was associated with a relative decrease in Educational Aspiration. This latter result may reflect the fact that satisfaction with pay could mitigate feelings of the need for further education.

The correlations for experimental respondents indicate somewhat weaker relationships with job satisfaction, perhaps because the work experience programs involved a variety of activities only a part of which was the job itself. For experimentals, however, all significant correlations were consistent with the general statement that satisfaction with a job was related to favorable change on the impact scales.

5. Test of the Theoretical Model

Regardless of the impact of the YWEP on the youth development variables, it was desirable to determine whether the conceptual model was valid. That is, was change on Self-Reported Delinquency related to change in the other variables? To test this, a stepwise multiple regression analysis was performed with raw gain scores on Self-Reported Delinquency as the dependent variable and the initial scores and raw gain scores on the other scales as predictors. Groups (experimental or control) and initial and raw gain scores on aspiration level were also included as predictors.[10] These analyses are summarized in Table 3.

While the proportion of variance explained is not as high as reported in previous research with this model (Brennan and Huizinga, 1975), there is substantial confirmation in these data. It appears that predictions for males are slightly better than prediction for females, although, over the twelve months pre-post lag, the level of prediction is more similar.

The introduction of the experimental-control variable in the stepwise analyses, produced no significant increase in total explained variance, indicating that this variable made no unique independent contribution to the prediction of changes in delinquent behavior. This simply confirms the previous analysis. It is important to note, however, that gains in occupational aspirations and access to occupational roles were both predictive of a decrease in delinquent behavior, and both of these variables were associated with work experience in the pure case analysis.

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[10] This analysis was performed with both raw gain scores and residual gain scores with only slightly different results. Only the raw gain analysis is reported here.

TABLE 3.

MULTIPLE CORRELATIONS PREDICTING GAINS IN SELF-REPORTED DELINQUENCY WITH THEORETICAL VARIABLES

	PERIOD	
	6 Month Follow-up	12 Month Follow-up
	R^2	R^2
Experimental		
Males	.30	.31
Females	.24	.19
Controls		
Males	.48	.46
Females	.09	.35

DISCUSSION

At the global level, comparing all experimentals and controls, the results of the follow-up analyses revealed no favorable outcomes with respect to the youth development variables which could be associated with participation in the Oakland Youth Work Experience Program. The two statistically significant differences observed in the first follow-up, while substantively small, nevertheless favored controls rather than participants. At the second follow-up, there were no significant differences. In general, experimental respondents did not change relative to the control respondents over the twelve month study period.

Special analyses with a restricted focus upon the impact of work involved thirty-five (time 1-2) and thirty-eight (time 2-3) pairs of experimentals and controls, where controls had no work experience in the particular six month pre-post test period. While the small N's render our findings somewhat tentative, the first follow-up analysis of these "pure" cases did produce the hypothesized favorable outcomes for experimentals (i.e., those in work roles) in three areas--increased educational and occupational aspirations and a perceived increase in opportunities for achieving occupational goals. It is precisely in these areas that we would have predicted the work experience should have had its most immediate effect--on aspirations and perceived opportunities for jobs.

The second follow-up analysis also found significant differences favoring experimentals (less negative labeling by parents and teachers) and every other difference, although nonsignificant, favored the experimental group. This occurred, it was found, not because the experimental cases improved from time 2 to time 3 (in general they did not) but because the control cases who had not worked had shown unfavorable change on every scale, statistically significant change on seven of them. Furthermore, when control respondents who had worked were compared with those who had not worked, every difference favored those who worked, with six differences being statistically significant. Again this was not because the controls who worked had improved. Rather, they had simply maintained previous levels while the controls who did not work reported increasingly negative changes across time. A final pure case analysis comparing experimentals and control pairs who were both working, indicated no significant differences on any of the youth development variables for either follow-up.

Taken together, the special work analyses support the view that work experience per se does have some positive impact, particularly upon job aspirations, perceived future work opportunities, and upon a youth's perception of how teachers and parents respond to him. It should be noted, however, that the relative gains associated with work were not dramatic, and that in absolute terms those with work experience did not generally report gains but maintained initial levels on youth development variables. It also appears to make little difference whether the work experience is obtained through a work experience program with its special attention to skill development and job counseling or through work secured by more conventional processes available to all youth. And finally, the more satisfying the work experience, the greater the impact upon youth development variables. Interestingly, the degree of satisfaction with work was unrelated to whether it was obtained in connection with YWEP or through one's own efforts.

The test of the theoretical model was generally supportive and suggests that programs which are effective in increasing perceived access to constructive, meaningful social roles, and generating more positive labels for youth, will impact upon delinquent behavior. Work, whether secured through normal process or through special work experience programs, appears to constitute such a role for youth.

The above findings appear to question the value of the counseling, tutoring and skill development incorporated into most work experience programs. We are hesitant to draw this conclusion. Even twelve months after entry into the YWEP few participants had made any serious attempt to enter the labor force in a full-time capacity. We are concerned that the length of the follow-up is too short reasonably to expect the full impact of the work experience program to be manifest. This argument appears particularly relevant for the skill development/educational component of the program, for YWEP youth simply have had no opportunity to utilize these skills in an effort to secure, maintain or improve their occupational statuses or develop their work careers. We thus agree with Robin's (1974) assessment that a valid confirmation of work program effectiveness requires a long range follow-up of actual occupational performance in the "real world and in the honest-to-goodness labor market," to determine if the program resulted in lower unemployment rates, more efficient work patterns, higher morale and work satisfaction, more advancements and upward occupational mobility as well as improvement on the youth development variables suggested here. Such an analysis is clearly beyond the scope of the short range evaluation studies done to date.[11]

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[11] Shore and Massimo (1969) report on a five year follow-up, but the sample size is so small (N=10) that no generalization can be made.

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CONTROL GROUP SELECTION

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ABSTRACT

This paper discusses several aspects of preferred research design. It asserts that the classical randomized experimental design offers the best chance of estimating the unbiased effects of a social program, such as youth training or employment programs. Coincidentally, compared to the costs of non-randomized program evaluations at a given level of statistical significance, the randomized experimental design is less expensive per marginal unit of information gained by non-random methods. Thus, this review paper makes a general plea for more extensive use of the classical randomized experimental design and provides some observations on the relative validity of several criticisms concerning the feasibility, usefulness, and the ethics of random assignment in a social experiment or social program.

In the case of non-random assignment, this paper provides a straight-forward discussion of a method to overcome the problem of selection bias by means of regression techniques. It illustrates solutions to problems of non-random sampling schemes in terms of the problems of errors in model specification and errors in variables. However, due to the lack of data and lack of knowledge on model specification, evaluation results obtained from non-random selection data usually remain inconclusive. Since randomization avoids this problem, a strong case for randomized experimental design remains.

INTRODUCTION

This paper reviews the current state-of-the-art with respect to the use of randomized assignment in the evaluation of social programs such as the Job Corps or similar employment and training programs. As such, it is not original. We assert at the outset that the classical randomized experimental design offers the best chance of discovering, for instance, why the youth unemployment problem is as it is and what to do about it. Compared to other techniques of analyzing social problems and devising social programs to deal with them, the classical randomized experimental design:

a) allows one to unambiguously assert cause and effect;

b) allows one to measure the net effect of a social program without statistical bias; and,

c) is less expensive per marginal unit of information, that is, a given level of statistical precision can be achieved at a lower cost.

All three of these benefits are crucial for society as it attempts to solve its social problems, but this paper focuses only on the second of the three benefits.

THE NATURE OF THE PROBLEM

The plight of youth in the market place has been severe for approximately a decade. Research interest has characterized the discussion as one of "transition from school to work." Various programs have been devised or rediscovered as means to aid unemployed youth, such as the Job Corps, The Neighborhood Youth Corps, Career Education, and the programs contained in the Youth Employment and Demonstration Act of 1977. However, while there has been a considerable amount of data generated through research on the "youth program," an equal amount of information has not been concomitantly created. We know very little about the absolute or relative efficacy of most of the programs designed to aid youth having problems in school or the labor market. And, in fact, through the use of longitudinal data, it is just recently that the process of transition from school to work has been adequately described, much less understood. This state of ignorance is all the more distressing when one recognizes that tens of millions of dollars have been spent to dispel this ignorance. Essentially, we know a great deal about the characteristics of youth who are suffering these disabilities but little about behavioral processes or how programs to aid youths are likely to work.

Programs to aid youth have been predicated upon reasonable but essentially untested hypotheses about links among the characteristics and behavior of youth, training processes and labor market processes.

The Neighborhood Youth Corps, for instance, never had a clearly articulated policy statement as to how it was expected to return youth to school or improve their employment prospects. The basic idea underlying Career Education is one of a structural relationship between education in its broadest sense and work in a broad sense which continues throughout most of one's productive life. But the relationship has never been rigorously spelled out. In short, our understanding of the "youth problem" is in relative disarray and beset by more ignorance, ambiguity and uncertainty than is conscionable given the time and resources expended on the problem to date. Part, but not all, of the reason for this can be traced to the use of faulty research design and analysis. An additional share can be traced to a failure to carefully articulate how programs designed to deal with the problems were designed to work. These two phenomena clearly interact.

THE CLASSICAL RANDOM EXPERIMENTAL DESIGN

The "youth problem" has two components. First, there is the problem of analyzing why youth, and especially black youth, have had such high and persistent unemployment in the present and recent past. Second, there is the problem of devising a set of programs to correct the problem.

Suppose a youth employment or training program is to be evaluated by comparing the experiences of an experimental group of youths who were part of the program to the experiences of a control group of youths who were not. The classical advice of statisticians would be to assign subjects at the outset to the experimental and control groups at random, such that any given subject has the same probability of experimental group assignment as any other subject. Such randomization assures that differences between experimental and control group experiences, beyond those differences attributable purely to chance, are legitimately attributable to the program. In the absence of such randomization, analysts may end up with experimental and control group experiences which systematically differ for reasons other than the program. Given the appropriate data, there are statistical techniques for adjusting away such nuisance differences. But, in practice, given imperfect information, there is virtually never concensus among the experts that any given adjustments are adequate. Without adequate adjustment, estimates of program effectiveness suffer to an unknown degree from selection bias. This selection bias problem has thoroughly bedeviled past program evaluations. Indeed, it has been the main problem of past evaluations. Since randomization avoids the problem, there is a strong case for randomization. The case has been made before, but it deserves repeating.

RESPONSE TO CRITICISMS OF CLASSICAL RANDOM DESIGN [1]

Resistance to use of the classical randomized assignment to a program treatment has remained curiously persistant and severe. It is instructive to list the arguments tendered against the use of random assignment and to evaluate the relevance of their criticism. Following Boruch, these criticisms can be classed according to the following:

I. Feasibility and Usefulness

Under this general heading classical randomized experiments are asserted to be:

(1.) virtually impossible to implement in real world settings or impossible to perform for some programs;

(2.) relatively more expensive and time consuming than other equally effective, unbiased methods of analysis;

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[1] These arguments and their discussion are largely drawn from Robert F. Boruch, "On Common Contentions about Randomized Field Experiments," in Gene V. Glass, editor, Evaluation Studies, Review Annual, 1976. Throughout this discussion, we mean "experimental design" to imply the test of a program by means of random assignment of program participants to an experimental and a control group for a given social program. This random assignment may also involve or require random assignment to different mixes of treatments within a program experiment. Those social programs which do not involve random assignment we choose to label as demonstration projects, quasi-experiments or natural experiments.

(3.) unnecessary since other quasi-experimental designs or statistical procedures to estimate effects are just as effective;[2]

(4.) too narrow in scope and inherently neglectful of important process or institutional factors and target groups, and therefore unable to yield results which can be generalized.

(1.) Inability to realistically impletment. As Boruch points out there has been a wide variety of social experiments. Experiments generally must remain relatively simple in order to be manageable conceptually and facilitate clear interpretation. Experiments can nevertheless be made to reflect a policy maker's definition of reality, even though this implies greater complexity. However, complex treatment on a diverse set of target groups cause a multiplicative increase in the sample size. This increases the absolute cost of a study considerably. The sample size requirements alone often cause one to argue that the necessary test is not possible.

Obviously, when the policy maker is confronted with these costs, he is then forced to make choices among the policy questions he seeks answers to, the program treatments he would like to test and the target populations he would like to test them on. This is a painful process since our experience has shown that the practical policy maker, other things equal, would rather not have to make such choices, at least not explicitly. Likewise, the policy maker often does not understand the interrelationships between sample size, expected treatment impacts and the statistical precision of the desired estimates he seeks. Thus, he is bound to become disenchanted with the research process, regardless of whether it is a classical experimental design. He turns naturally, then, to such methods as the case study design which promises a richness of detail for which he has a greater taste and familiarity. But, what he often fails to recognize, or even asserts not to be the case, is that he has opted for much less reliable information on a greater number of facets of his problem rather than more reliable information on a smaller set of more critical facets.

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[2] The later part of this paper will discuss and evaluate this assertion in detail.

We find this situation frustrating since there are certain strategic problems concerning youth unemployment which are readily addressed by an experimental design. First, as indicated above, we would like to know the process and causes of youth unemployment. How might certain social programs affect youth labor market experience, for instance? Economic theory supplies hypotheses concerning the effect of minimum wages and income transfers on unemployment which can be readily tested in an experimental framework. An experimental design to test the disemployment effect of minimum wages is not an institutional or research impossibility except for the fact that the Comprehensive Employment and Training Act essentially outlaws such an effort. Differential subsidies connected with unemployment insurance payments (UI) could be used to test the degree to which UI leads to greater job search, higher resulting wages and other reallocations of one's time among work, leisure, job search and home production. But changes in existing law would be needed to perform such a study. [3]

(2.) Relative Cost. If legal constraints were cleared away, the cost of discovering the effect of different policies on youth unemployment would be relatively small. The policy options to test are relatively few: 1) wage subsidies (to interact with the minimum wage), 2) retraining or education in its various forms and, 3) public service employment (PSE). Likewise, the target groups of greatest interest are well identified and relatively few: the two sexes, several ethnic groups, and two to three different age groups within the youth category. This implies, say, 36 separate treatment, sex, ethnic and age groups. If, on the average, between 500 and 1,000 observations per cell are needed to make acceptably precise statements as to treatment effects, we are discussing a sample size in the neighborhood of 18,000 to 36,000 observations.

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[3] To its credit, policy makers in the Department of Labor's Employment and Training Administration attempted to get legal permission to conduct experiments within the CETA program, the Unemployment Insurance and Employment Service programs in the fall of 1976. However, the effort was abondoned in the face of broad-based resistance in the Department as a whole along with the unwillingness to use up political capital on the struggle required to press the issue.

It would be possible to design an experiment that would have no more than three or four interviews required per sample unit. Thus, at about $150 per interview, such a study might cost as much as $21,600,000 for data alone. Analysis costs would add two million or so to the cost. Thus, with a parsimonious design that restricted itself in a disciplined way to major target groups and treatments one would likely be able to ascertain, after three to four years elapsed time, whether training, PSE or wage subsidy was more efficacious in reducing youth unemployment. Many subtle nuances could not be handled in such an analysis, but since we do not know even the broad answers to the above questions, the loss of information on nuances hardly seems critical at this juncture.

What would be the net social value of such an effort? As Boruch points out, there have been few formal analyses of the costs and benefits to society of doing no evaluation compared to performing equivocal evaluations or rigorous tests of social programs. In fact, in the employment and training area there have been no such estimates! Such an analysis would be useful for it would help clarify the difference between 1) cost per unit of information acquired versus 2) the expected cost of information to acquire a given increment of social benefit or improvement in social policy. For the first condition, it is always the case that it will be less expensive to acquire a given datum at a specified level of statistical significance by using a classical random design than by some other more impressionistic method. This is so because a random assignment assures that there is no intercorrelation between program treatment and other independent variables of interest. Thus, fewer observations are needed to achieve a given level of statistical precision. This implies a lower cost (Pitcher, 1978).

An assessment of the second case above depends in part on the weight given to information in the political decision-making process and the reasons why information of a given kind is used. Some policy makers clearly only go through the motions of appealing to rational information in making a given decision. For them, objective information has a weight of zero in the actual decision-making process. In such a case, the method used to acquire the information does not really matter. In other situations, if one wants to establish the general direction of an effect, then non-experimental data is usable. A case in point was the simple two-way cross-classification which showed to Congress that program enrollees in the Public Employment Program (PEP) had higher average economic qualifications than the labor force as a whole. Congress did not know the ultimate extent of substitution of higher for lower employable persons under PEP. It did not need to in order to revise the CETA law in the fall of 1975 to attempt to stop the practice of state and local governments of hiring other than the disadvantaged into Public Service Employment Jobs. The point is that one could have used a classical experimental design to attempt to measure the exact degree of this occupational substitution under different constraints but such information simply was not needed for the immediate purpose. All that was required was simple evidence on the very existence of the phenomenon. The cost benefit ratio in this case was very high. However, when more precise behavioral knowledge is needed, an experimental design with random assignment is the only technique which will provide unambiguous information rather than factoids. A case in point is the attempt to measure the impact of an income maintenance program on work incentives through various data sets such as the Current Population Survey or the Survey of Economic Opportunity. A dozen or more quality studies by highly skilled economists were conducted but with very divergent results (Cain and Watts 1973, Chapter 9). It has only been the several negative income tax experiments which have shown any consistency in their estimates (Watts and Rees, 1977). In the former case, among the studies, measures of income and substitution elasticites not only differed in magnitude but in sign, while, except for problems caused by small samples, the negative income tax experiments report generally consistent estimates across studies for given target groups. Use of the former data is next to worthless for policy purposes since there is no objective criterion for choosing among the contending results. Nor does the accumulated evidence describe a narrow enough range of effects. Thus, while pedagogically the various labor supply studies were of considerable value, their value in aiding specific welfare reform policy was next to useless for they gave no guidance on the possible cost of lost output in setting a given level of income guarantee or tax rate on earnings. While it is possible that such studies, through improved data and statistical techniques, could have reduced the range in the estimates of decreased work effort, the NIT experiments actually achieved the result more quickly for a few millions of dollars of economic costs (as distinct from the transfer payment costs used to conduct the experiments).

(3.) Quasi-Experimental Designs and Statistical Adjustments. A major theme of this paper is that it should be possible to model structurally the behavior which leads to self-selection into a program. This will then remove a major source of bias in non-experimental studies. Though, even then, we should point out, in the absence of a classical experimental design, we cannot logically assert cause and effect between treatment and outcome, but only a correlation.

In the act of operating a program, however, systematic selection biases abound. There is selection bias on the part of program operators. Then there is self-selection bias on the part of the individual program participant. If both these processes could be modeled, then such bias could be eliminated. To model these processes one must gain access to them when a program begins. As a practical matter, this has proven difficult to do. These arguments are carried further in the Regression Model Section below.

(4.) Narrowness of Scope and Lack of Institutional Relevance. Except in the case where it is statutorily prohibited, it should be possible to model the most salient components of a program experimentally and randomly assign individuals and a control group to it. Indeed, some existing programs such as the unemployment insurance or the minimum wage program, inasmuch as they offer almost universal coverage, may be impossible to test using a non-experimental design because it is not possible to establish a comparable group who has not been affected by the program treatment. However, it is possible to use random assignment to test various behavioral effects of, say, the UI program, by randomly varying the amount of unemployment insurance benefits among eligible recipients. There is, of course, no zero treatment group. Everyone receives some level of benefit. However, one can discover the differential effects of UI payments over the range of payment amounts that are politically acceptable. The case of the impact of the minimum wage on youth displacement is similar. Given a specific legislated minimum wage, vouchers which amount to differing wage subsidies could be randomly awarded to all unemployed youth, including vouchers of zero value. Such a scheme, if the traditional vested interests did not find it too threatening, would measure the existence and extent of disemployment effects of the federal or any state minimum wage. As noted above, however, studies of wage subsidies per se are currently illegal under CETA.

With respect to training programs we should note that a body of experimental evidence could have largely avoided the curious phenomenon whereby training was considered a panacea for employment problems for a decade before opinion in Washington, D.C. largely reversed itself about 1974 and asserted that such programs did not work. Of course, such reversals of opinion are exactly that, reversals of opinion. The existing body of non-experimental evidence can be interpreted either for or against training. The fact is that the conceptual links between training and its addition to human capital on the one hand and the increase in human capital and its effect on earnings and employment on the other simply are not well understood. A non-experimental model of analysis, however, puts more demand on one's understanding of this conceptual linkage than an experimental design does since there is a greater need for more precise specification of the causal model at hand to overcome potential biases in the estimated results.

Of course, as Boruch and others have noted, this modelling process should not be left to the analyst alone. Rather, the program operator or policy maker must participate in this specification.[4] This statement holds for the development of policy questions asked, for the hypotheses to be tested and therefore for the model to test them with, the target groups and treatments under consideration.

Thus, when properly conducted, the charge that an experiment is too narrow in scope and can't be generalized, or does not deal with the correct target groups or treatments or yields irrelevant results is

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4. As a practical matter, this, too, is very difficult to achieve, given the incentives to which policy makers and program managers respond.

simply incorrect. Persons are most often incorrectly generalizing from observed behavior wherein program operators, policy makers and program analysts fail to interact properly.

THE ETHICS OF CLASSICAL RANDOM EXPERIMENTS

In the analysis of the effects of employment and training programs, mind and body are seldom placed in jeopardy, at least not directly. Also, a given treatment will not always yield net benefits nor does the denial of a treatment necessarily imply a net loss. Either the experimental or the control group may gain or lose, depending on the outcome of the experiment. Therefore, to the exent that economic quantities are the major matters of concern, provisions can be made beforehand to compensate the losers in an experimental test of a program treatment. Another alternative would be to provide the treatment, should it prove beneficial, to the control group at a later date. However, some economic compensation is still required since the control group will have a shorter period over which to gain the benefits from the program.

Finally, we should point out that it may be equally unethical to create social programs whose objectives cannot be realized due to inappropriate design. This amounts, after all, to subjecting people to social "experiments" indirectly and the dashed hopes or unfulfilled expectations are no less of a cost to those who experience them for all that the programs were put forth with honorable and humane intentions. In either case, people have been manipulated by the system and have incurred costs. This is a common charge made to the "War on Poverty."

Thus, in general, the argument that classical experimental designs are unethical in education and labor market analysis is incorrect. In a study with proper safeguards, the losers and gainers are known, the extent of loss and gain can be known, and society's resources are sufficient to compensate the losers if it chooses to do so.

PROBLEMS OF SELECTION BIAS IN THE REGRESSION MODEL

A randomized experiment is free of selection bias. Thus, comparisons between experimental and control groups can reveal the true effects of a social program. However almost all past program evaluations such as those of Headstart or the several forms of the Neighborhood Youth

Corps have not been based on randomized data. (However, see Robin, 1969, for a study of the Neighborhood Youth Corps which uses a random assignment design). Though analysis of non-randomized data can be valuable when carried out properly (Barnow, 1972; Goldberger 1972a, 1972b), the results are seldom conclusive due to the doubts about whether selection bias has truly been netted out. The inconclusive Headstart evaluation provides a good example (Campbell and Erlebacher 1970) in which the control group appeared more able than the experimental group because the usual procedures of selection and analysis produced systematic biases in the direction of underestimating the effects of the experimental program. In a statistical framework, these biases can be considered errors in specification and errors in variables (Barnow 1972; Goldberger 1972a, 1972b; Cain 1975; and Heckman 1976), either of which may bias regression coefficients. In the case of errors in specification, as long as the omitted variables are introduced into the equation, the model will be properly specified and the expected value of the error term will be zero, i.e., the regression coefficient which measures program effect will be unbiased. In the case of errors in variables, as long as the regressor and the error terms are not correlated, the regression will be unbiased. In fact, errors in specification and errors in variables may be interdependent in the case of non-random sample selection, as will be shown in this section.

Errors In Specification

Using a youth training program such as Job Corps as an example, the sources of selection bias and suggestions for obtaining unbiased estimates are presented in the framework of regression analysis. Regression is not the only statistical technique for program evaluation, but it is an especially convenient tool. In mathematical derivation, regression analysis is equivalent to analysis of covariance (Goldberger 1964).

A simple linear model for evaluating the effect of a social program is to let

$$(1)\quad Y = \alpha_0 + \alpha_1 Z + \varepsilon$$

where Y is post program achievement, Z is a dummy variable for the social program (defined as 1 if a youth received program services and defined as 0 if a youth did not receive program services). The error term captures the errors in measuring Y and other omitted variables. If the sample selection of experimental and control groups is randomized, then Z and ε are not correlated. Therefore, the estimated value of α_1 is the unbaised estimate of the effect of training in Y.

If the control group or the experimental group is not randomly selected, but is selected based on a set of sociodemographic factors such as a set of true ability measurements, then the Z variable and error term ε in Equation (1) will be correlated. In this case a more accurate model of specification for the social program evaluation must include these variables. For the sake of simplicity, only the true ability variable will be included in the model:

$$(2) \quad Y = \alpha_0 + \alpha_1 Z + \alpha_2 X^* + V$$

where X* is the true ability of a youth and V is a new error term equal to $(\varepsilon - \alpha_2 X^*)$. Assume that once X* is introduced into the equation, there is no correlation between Z and V.

A biased estimate of the program effect could result if the true ability variable is omitted from the estimation of Equation (1) when control groups or experimental groups are not randomly selected. The source of bias is the possible correlation between the training variable Z and error term ε. That is, ε contains the ability variable X*, which may correlate with training (Z), such that

$$(3) \quad X^* = \gamma Z + e$$

where γ measures the degree of association between training and ability, and e is the error term.

Substituting (3) into (2), yields

$$(4) \quad Y = \alpha_0 + \alpha_1 Z + \alpha_2(\gamma Z + e) + V$$

$$= \alpha_0 + (\alpha_1 + \alpha_2 \gamma) + (V + \alpha_2 e)$$

Let $a_1 = \alpha_1 + \alpha_2 \gamma$. The difference between a_1 and α_1 in Equation (1) is due to $\alpha_2 \gamma$. The relation between treatment and true ability may be analyzed as follows:

i) If $\gamma = 0$, (that is, when program treatment is assigned randomly with respect to true ability), then

(5) $a_1 = (\alpha_1 + \alpha_2 \cdot 0) = \alpha_1$.

Therefore, no bias exists. The results of a_1 in Equation (4) will be the same as α_1 in Equation (1). This is the case of a randomized experiment in which regression technique provides an unbiased estimate of the program effects.

ii) If $\gamma < 0$, that is, when the treatment is assigned to youths of lower ability than those in the control group, then

(6) $a_1 = (\alpha_1 - \alpha_2 \gamma) < \alpha_1$.

iii) If $\gamma > 0$, that is, when program treatment is assigned to youths of higher ability than those in the control group, then

(7) $a_1 = (\alpha_{11} + \alpha_2 \gamma) > \alpha_1$.

In this case, regression analysis can lead to a bias in favor of program treatment effects, reflecting a type of 'creaming' or self-selection process such as may occur in various employment and training programs.

The results of the previous three cases imply that there are two approaches to obtaining unbiased estimates of the effect of youth employment and training programs. The first approach is random assignment of experimental and control groups before the program begins to ensure zero correlation between the treatment variable Z and the error term ε in Equation (1). The second approach, in the case of nonrandom assignment, is to formulate a fully specified regression model, including the true ability variable and other sociodemographic variables on which selection into the program was based to ensure zero correlation between Z and V in Equation (2). To know what kinds of variables are omitted in Equation (1) requires familiarity with program selection procedures. Once the relevant omitted variables are included in the regression model, then errors of specification can be avoided and one source of correlation between the training variable and the error term can be eliminated. However, the problem in practice is that the variable or variables on which selection takes place (the ability variable X* in our simple example) are either not known or are known but have not been measured. The analyst is then forced into procedures analogous to regressing Y and Z as if Equation (1) were the true model when Equation (2) is in fact the true model. The result is a biased estimate of the program's effect. Therefore, under nonrandom selection it is virtually never possible to argue persuasively that an estimated program effect has truly accounted for all variables on which the nonrandom selection was based. The only remaining foolproof option is randomization. That is, randomization negates the bias caused by omitted variables.

Errors in Variables

When random selection is not possible, three other bases for selection may be used. One is based on true ability, X*; the second is based on achievement, X; and the third is unknown selection.

Suppose that true ability X* is normally distributed, with an expected mean of zero and variance σ^2:

$$(8) \quad X^* \sim N(0, \sigma_*^2).$$

Furthermore, assume that pretraining achievement X and post-training achievement Y are erroneous measurements of true ability, such that

$$(9) \quad X = X^* + U$$

$$(10) \quad Y = X^* + V$$

Where U and V are normally distributed with zero mean and common variance, $N(0, \sigma^2)$. Let Z be a dummy variable for training as defined before. And, let U be independent of V, X^*_1 , and Z, such that

$$(11) \quad \rho(U, Z) = \rho(U,V) = \rho(U,V) = (U,X_1^*) = \rho(V, X_,^*) = \rho(V, Z) = 0$$

when selection is based on true ability and X* is unavailable for the evaluation--only a pretraining acheivement measure is available. Therefore the regression model becomes

$$(12) \quad Y = \alpha_0' + \alpha_1'Z + \alpha_2'X + V'$$

where $V' = V - a_1U$. The use of a pretraining achievement measure X for X* is subject to the problem of errors in variables. In regression analysis, errors in variables cause biased estimates, such that $\alpha_1 \neq \alpha_1'$ and $\alpha_2 \neq \alpha_2'$ (as shown in Barnow (1972)).

When selection is based on pretraining achievement, then Z is determined by X. Thus Z depends on both X* and U, but remains independent of V. Pretraining achievement reflects only a part of true ability in so-called incidental selection (Lord and Novick 1968), since the control group does not come entirely from the high ability segment of the population; the control group also includes low-ability individuals who happened to achieve unusually well on a measure of labor market skill. When selection is explicitly based on pretraining achievement (not on true ability) and pretraining achievement is used as a regressor in the regression model,

$$(13) \quad Y = \beta_0 + \beta_1Z + \beta_2X + V$$

where X is not correlated with V, then even though the control group is more able, there is no bias in the estimate of the effects of training. Campbell (1969) refers to this type of evaluation as a "regression discontinuity design" and recommends its use when nonrandom selections are made. Goldberger (1972a) has shown this advantage by means of mathematical derivation.

When the selection process is not fully known, there are two ways to eliminate correlation between Z and V in order to obtain unbiased estimates of the effect of training. One way is to rely on labor market behavior and economic theory to provide relevant control variables which may correlate with the training variable as well as the post training achievement variable, as suggested by Cain (1975). This approach may reduce the size of the error term and eliminate correlation between Z and V. The other approach is to consider the training variable Z itself as an endogenous variable which correlates with V. Therefore, Z can be estimated as a function of a set of relevant selection factors which are not correlated with V. Once $\hat{Z}$, the estimated probability of participation in the program, is obtained and used as a regressor, the regression estimates of the training effect should be consistent (Heckman 1977).

This is an instrumental variable approach. It is known that although this approach provides consistent estimates, the empirical results of this approach are difficult to interpret.

In summary, the most desirable approach to evaluation of a social program is the randomized experiment. When random assignment is not possible, proper specification of the evaluation model is necessary in order to ascertain the unbiased effects of a program. However, to repeat, due to the lack of data and lack of knowledge of the selection process, evaluation results obtained from nonrandom sample selection data are inconclusive. Therefore, it is important to encourage evaluators and econometricians to pay more attention to the problem of sample selection bias, so that the results of program evaluation can be useful and meaningful to policy makers.

SUMMARY

This paper discusses several aspects of proper research design, namely, the proper procedure to conduct a social program evaluation. It makes a general plea for more extensive use of the classical random research design, presents the standard criticisms of such a design, and provides some observations on the relative validity of these criticisms. Within this context, this paper has discussed the merits of past studies on the evaluation of manpower training programs, with special reference to the nonrandom sample designs.

This paper provides a simple version of dealing with problems of selection bias in a regression model framework. It illustrates problems of the nonrandom sampling scheme in terms of the problems of errors in model specifications and errors in variables. It is hoped that future program evaluation will rely upon randomized experimental design so that evaluation bias can be minimized. This will provide more positive knowledge about ultimate program impacts and do so at lower social cost than has been the case to date.

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METHODS OF ALLOCATING FUNDS TO ALLEVIATE TEENAGE UNEMPLOYMENT PROBLEMS

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ABSTRACT

This paper examines methods for allocating funds currently available for combatting youth labor market problems. Since available studies disagree about the nature of the teenage unemployment problem, we propose allocation methods consistent with various alternate views: (1) that teenage unemployment has only short-run effects on earnings; (2) that it affects future (lifetime) earnings and achievement. The implications of a cohort-specific versus a continuing teenage unemployment problem are also considered.

Our analysis suggests that decisions about program mix and eligibility requirements should be made separately from decisions about allocation of funds to areas. Both program mix and fund allocation decisions are likely to vary depending on whether teenage unemployment is seen as having short-term or long-term effects. Specific allocation formulas are proposed that take these distinctions into account.

We then compare recommended program mix and fund allocation procedures with those found in the Youth Employment and Demonstration Projects Act. Several discrepancies emerge. First, the Act does not ensure uniform program mix across areas, even though uniform program mix may be desirable under certain views of the teenage unemployment program. Second, the statistical indices by which funds are allocated in the Act frequently differ from those recommended. However, conceptually different indices may produce similar empirical results. We therefore compare the distribution of funds by state under the Act with the distribution of funds under various recommended allocation schemes. Regional distributions are shown to vary considerably under the actual and recommended distributions.

INTRODUCTION

Continuing concern over youth unemployment has led to Congressional funding of programs to alleviate youth labor market problems. The Youth Employment and Demonstration Projects Act of 1977 will provide $1.5 billion for this purpose, and future Congresses may provide additional funding. How should these funds be allocated to obtain the greatest benefit per dollar spent? It is tempting to approach this important policy question by turning immediately to available statistics. There are any number of statistical sources--youth unemployment and employment rates, youth labor force and population statistics, poverty data, and so forth--which seem to provide relevant information. This temptation should be avoided, however, since statistical series viewed in isolation, without an analytical framework, will not generally provide the best possible answers.

There are at least two reasons why the statistics alone are insufficient. First, different statistical series may suggest alternative allocations of funds. For example, if states are ranked by youth unemployment rates and poverty rates, the Spearman rank correlation coefficient between the two rankings is quite low.[1] This indicates that the geographical distribution of youth employment and training funds would be rather different if such funds were allocated by youth unemployment rates rather than poverty rates.

Second, and more fundamentally, the underlying problem must be carefully analyzed if policy goals are to be specified concretely. For example, suppose the goal is to ameliorate the "bad effects" of teenage unemployment. If teenage unemployment implies higher adult unemployment when the cohort of teenagers ages, the goal of attacking youth unemployment may actually be to prevent adult unemployment in the future. If teenage unemployment does not lead to higher adult unemployment, then the goal may be to prevent juvenile delinquency, provide income earning opportunities to members of low income families, and so forth.

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1. This correlation was calculated from 1970 Census Data and data on youth unemployment rates for twenty-five states presented in U.S., Congress, Congressional Budget Office, Policy Options for the Teenage Unemployment Problem, Background Paper No. 13. (Washington: Government Printing Office, 1976), p. 92.

Section I of the paper explores the nature of the youth employment problem and evaluates its public policy implications. This analysis is used in Sections II, III, and IV to derive and evaluate allocation schemes based on various statistical indicators.

I. DIAGNOSIS OF THE PROBLEM AND POLICY IMPLICATIONS

Certain basic features of the teenage unemployment situation are illustrated by Table 1. Table 1 presents teenage and adult unemployment rates for 1950-75. Since the 1950s the teenage unemployment rate has been between 2.5 and 4.7 times the adult rate. Moreover, the ratio of teenage to adult unemployment in the late 1960s was higher than in preceeding and following periods. Furthermore, nonwhite youth rates have consistently been higher than rates for white youths. Since the labor force participation rate in the 1970s was considerably lower for nonwhite male youths than for whites, the measured racial unemployment differential probably understates the true differential.

EXPLANATIONS OF TEENAGE UNEMPLOYMENT

These basic findings have been subjected to different interpretations. Three recent analyses represent a range of informed opinion about teenage unemployment. We briefly review these analyses and then discuss their relevance to allocation decisions.

The first analysis is Martin Feldstein's.[2] In his view, chronic high youth unemployment is due to two main causes: (1) slow absorption of new entrants into the labor market, and (2) low job attachment among young workers. A relatively high percentage of youthful job seekers are new entrants who must spend some time in job search before obtaining their first employment. In 1975, roughly 36% of unemployed teenagers

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[2] Martin Feldstein, "The Economics of the New Unemployment," The Public Interest, vol. 33 (Fall 1973), pp. 3-42.

TABLE 1

UNEMPLOYMENT RATES FOR TEENAGERS COMPARED WITH NON-TEENAGE UNEMPLOYMENT RATES IN THE UNITED STATES, 1950-1975

Year	(1) Age 16-19	(2) Age 20+	(1) - (2) Difference	(1)÷(2) Ratio
1950	12.2	4.8	7.4	2.5
1951	8.2	3.0	5.2	2.7
1952	8.5	2.7	5.8	3.1
1953	7.6	2.6	5.0	2.9
1954	12.6	5.1	7.5	2.5
1955	11.0	3.9	7.1	2.8
1956	11.1	3.7	7.4	3.0
1957	11.6	3.8	7.8	3.1
1958	15.9	6.2	9.7	2.6
1959	14.6	4.8	9.8	3.0
1960	14.7	4.8	9.9	3.1
1961	16.8	5.9	10.9	2.8
1962	14.7	4.9	9.8	3.0
1963	17.2	4.8	12.4	3.6
1964	16.2	4.3	11.9	3.8
1965	14.8	3.6	11.2	4.1
1966	12.8	2.9	9.9	4.4
1967	12.9	3.0	9.9	4.3
1968	12.7	2.7	10.0	4.7
1969	12.2	2.7	9.5	4.5
1970	15.2	4.0	11.2	3.8
1971	16.9	4.9	12.0	3.4
1972	16.2	4.5	11.7	3.6
1973	14.5	3.8	10.7	3.8
1974	16.0	4.5	11.5	3.6
1975	19.9	7.3	12.6	2.7

SOURCE: Columns (1) and (2), Bureau of Labor Statistics, from the data base of Data Resources, Inc. (DRI).

were new entrants to the labor force.

Low job attachment among young workers offers an explanation of youth unemployment based on the unattractiveness of jobs rather than their unavailability. Entry level jobs for teenagers often offer neither valuable training, nor opportunites for advancement. As a result, employers are less reluctant to lay off young workers when demand falls because no investment has been made in these workers. Moreover, young workers are more likely to leave jobs perceived as dead-end, particularly if comparable jobs are readily available.

Feldstein also argues that the "true" social and economic problem of teenage unemployment is overstated by existing data. First, much of the movement of youths both between jobs and into and out of the labor force merely reflects the fact that attending school is the major activity of roughly 40% of the labor force aged sixteen to twenty-one years.[3] Students typically look for full-time employment in the summer and part-time jobs during the school year. Feldstein argues that omission of part-time workers would substantially lower the unemployment rate calculated for sixteen to twenty-one-year-olds.[4]

The problem of teenage unemployment may also be overstated as a result of differences in attitude and motivation between youths and adults. Most young workers do not have the same family responsibilities as older workers; and they may desire more leisure than is consistent with full-time employment and permanent attachment to a firm. Hence, teenagers are more likely than adults to alternate between working and other activities. This tendency may have been heightened by rising wage rates which "permit a comfortable standard of living with less work, or less responsible work than was possible twenty years ago."[5]

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3. Ibid., p. 13.

4. Ibid.

5. Ibid.

In contrast to Feldstein's analysis, Edward Kalachek points to labor supply factors as causes for the recent increase in teenage unemployment.[6] In 1955, the ratio of the teenage to the adult unemployment rate was 2.8 while in 1969 this ratio had risen to 4.5. Kalachek argues that this deterioration in the relative labor market position of teenagers is due to a bulge in the teenage population.

Between 1960 and 1971, the teenage population rose by approximately 50%. In the absence of instantaneous labor market adjustments, this increase in the supply of young workers would result in higher teenage unemployment. Moreover, certain aspects of the youth labor market would slow the process of adjustment. Specifically, Kalachek argues that the problem of increased supply is aggravated by rising school enrollments. Because students seek part-year or part-time work, the standard job is not appropriate to their needs. This need for "different" jobs constrains the ability of labor markets to adjust rapidly to teenage population growth.

However, with time, employers would adjust their production processes and hiring procedures to take advantage of the ready availability of young workers at reduced wages. Kalachek argues that this process should soon be completed if only because teenage population will stop increasing. Teenage population will fall from 10.7% of the population in 1975 to 10.1% by 1980. However, he cautions that teenage unemployment will remain higher than adult rates in the new "post-population bulge" equilibrium. This is largely because the involvement of teenagers in school activities results in higher rates of labor force entrance and reentrance than among adults.

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[6] Edward Kalachek, Labor Markets and Unemployment (Belmont, Ca.: Wadsworth, 1973).

A third analysis of the teenage unemployment problem stresses the impact of the minimum wage on the employment opportunities of teenagers. Recent econometric studies provide consistent evidence that teenage employment has been decreased by the minimum wage, but studies focusing on unemployment give ambiguous results. Two explanations may be offered for these results. First, if the minimum wage discourages labor force participation, it is possible for employment to decrease while unemployment remains unaffected. Second, Goldfarb has argued that the ambiguity is due to the difficulty of controlling for population shifts (such as Kalachek's supply bulge).[7] Indeed, in a number of statistical studies, population shifts seem to have an independent effect on unemployment, but this may in part be due to a (hidden) minimum wage effect.[8]

In addition to direct effects of minimum wages on teenage employment, there are some indirect effects. Feldstein, for example, argues that minimum wages prevent employers from hiring teenagers for jobs with significant on-the-job training potential because they must be paid the minimum wage immediately even though they have not acquired necessary on-the-job training.[9] This restricts the number of jobs with "career potential" available to teenagers, and hence contributes to the job attachment problem mentioned by Feldstein as a cause of higher teenage unemployment rates.

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[7] Robert S. Goldfarb, "The Policy Content of Quantitative Minimum Wage Research," in Industrial Relations Research Association, Proceedings of the Twenty-Seventh Annual Winter Meeting, December 1974, pp. 261-268.

[8] The statistical studies indicate that unemployment increases are correlated with increases in teenage population. Suppose these teenage population increases are treated as outward shifts in the supply curve of teenage labor. Such outward shifts would not necessarily lead to rises in unemployment in the absence of a minimum wage. Without a minimum wage, wages might adjust downward to clear the market, so no extra unemployment would result.

[9] Feldstein, op. cit., p. 15.

None of the above analyses focus on the distinction between white and nonwhite teenage unemployment problems. Indeed, Iden has pointed out that reasons for somewhat different levels and cyclical patterns of white and black teenage unemployment are not well understood.[10] Locational differences, for example, do not seem to explain as much of the black-white unemployment differential as one would expect.[11] Moreover, the falling participation rate of black youths has not been well explained.

IMPLICATIONS FOR ALLOCATION CRITERIA

These analyses suggest two distinctions relevant for allocation criteria. The first distinction is between immediate and lifetime effects of teenage unemployment. If a teenager experiences unemployment today, that probably lowers family earnings today. However, unemployment may also increase the teenager's probability of unemployment (or more generally lower chances for career achievement) in later life.

The "cocoon" view of teenage unemployment stresses the immediate rather than lifetime impact of teenage unemployment. Under this view, teenage unemployment is high because a high proportion of teenagers are in school and looking for part-time work unrelated to future career plans. Even those not in school may not have established independent households or acquired family responsibilities. For those workers, a serious commitment to work and career may not yet have been developed. However, just as the caterpillar turns into a butterfuly, these teenagers will become serious workers once they leave school, get married, and otherwise settle down.

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[10] George Iden, "Business Conditions, Demography, and the Teenage Unemployment Problem," unpublished paper presented at the Annual Meeting of the Southern Economic Association, New Orleans, November 3, 1977.

[11] *Ibid*., p. 20.

In contrast, the "hangover" view of teenage unemployment stresses lifetime impacts. Under this view, teenage unemployment results in missed opportunities to learn good job habits and to obtain valuable training. Apart from any immediate impact on family income, teenage unemployment results in diminished future opportunities for unemployed youths.

The analyses summarized above may be interpreted in terms of this distinction. Feldstein's analysis is fundamentally ambiguous, containing elements consistent with both views. On the one hand, teenagers are not able to obtain enough jobs with career potential, implying that teenage unemployment has lifetime impacts. On the other hand, teenage unemployment is attributed to "special" characteristics of young workers, such as school attendance and a greater desire for leisure, which presumably will change as young workers mature into adult workers. Under this view, the effects of teenage unemployment are more immediate than lifetime. Kalachek's "supply bulge" explanation does not really address the "cocoon/hangover" distinction apart from suggesting that impacts, whether immediate or lifetime, are likely to be concentrated on the group of teenagers that comprise the population bulge. Finally, the minimum wage explanation is consistent with both views. To the extent that a higher minimum wage limits employer provision of training, there is a definite hangover. On the other hand, if the minimum wage primarily eliminates part-time jobs with little training component, the bad effects of teenage unemployment are more likely to have an immediate, but not a lifetime impact.

A second important issue concerns the existence of specific cohort effects. Is high teenage unemployment (with or without hangovers), expected to attack a particular cohort especially severely? While Feldstein's analysis does not really address this issue, the other two analyses certainly do. Kalachek's supply bulge analysis clearly implies that "excessive" teenage unemployment is cohort-specific; once the population bulge passes, unemployment rates will return to a lower "equilibrium" level. The minimum wage analysis contains a similar implication. We argued above that whatever the independent effects of population increases, they are likely also to intensify minimum wage effects on employment. Thus, if there is an unusually large cohort of teenagers, the minimum wage effects are likely to be unusually large.

II. ALLOCATION SCHEMES CONSISTENT WITH DIFFERENT VIEWS OF TEENAGE UNEMPLOYMENT

In this section we suggest allocation schemes that take account of the hangover-cocoon distinction and the cohort-specific versus non-specific distinction. The desired scheme varies with one's view of the nature of the teenage unemployment problem. Once these various "ideal" allocation criteria have been described, we compare them to the allocation rules of the Youth Employment and Demonstration Projects Act (YEDPA).

Suppose that the "cocoon" diagnosis of teenage unemployment is deemed to be the appropriate one; teenage unemployment has current effects on the teenager's income and that of his family, but has no impact on his future earnings or career pattern. Since unemployment as a teenager has short run rather than lifetime effects, allocation of funds should be aimed at ameliorating these short run effects. A central feature of the short run effect is loss of income, but a plausible argument is that, from society's point of view, this income loss is more serious the lower the income of the teenager's family. This suggests that funds be allocated primarily to aid lower income families.

In distributing funds, the decision maker is faced with two conceptually distinct allocation problems. The first involves allocating funds to different programs so as to achieve a desirable program mix. The second involves allocating funds to different geographic areas once program mix has been determined.

Consider first the problem of determining program mix. Presumably there exists a menu of available programs, each of which constrains participation in various ways through eligibility requirements. Since the distribution of program benefits by income class may differ for programs with different eligibility rules, it is appropriate to choose a mix of programs that achieves a desired distribution of benefits by income level. Once this desired program mix is chosen, each region should be required to use programs in that specified mix. Given similar regions, this procedure would help assure that the desired income distribution of clients was achieved in each region.

An example may be useful. Consider the case where all competing programs are equally effective at increasing teenage incomes; that is, \$1 of program cost raises teenage income \$X for each program. Then if an estimate of the income distribution is available for each program, determining the income distribution of benefits produced by various program mixes is straightforward.[12] Once alternative distributions are calculated, the one "closest" to the desired distribution can be picked.

When different programs are differentially effective at raising teenage incomes, choice of mix is more complex. If the desired distribution pattern can be obtained for a program mix using only the most transfer-effective programs (those that transfer the most income to teenagers per dollar of expenditure), then this is the preferred solution. If, on the other hand, the desired mix cannot be obtained using only the most transfer-effective programs, then alternative mixes using less efficient programs must be considered. If any of these produces a more desirable distribution of benefits than the best mix of efficient programs, the decision maker must choose between "efficiency" (more income transferred to teenagers) versus "equity" (a more desirable distribution of the dollars transferred).[13]

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[12] For example, consider two programs, each of which raises teenage income \$X per \$1 spent. Program 1 gives a% of this \$X to teenagers with family incomes between \$0 and \$4000, b% to teenagers with family incomes of \$4000 to \$8000, and c% to teenagers with family incomes greater than \$8000, where a+b+c=100%. Program 2 transfers g%, h%, and i% to the same groups. Then if, for each \$1 spent on program 1, \$R are spent on program 2, the distribution to the three income classes per dollar spent is $\frac{a+Rg}{1+R}$ to the lowest income class, $\frac{b+Rh}{1+R}$ to the middle income class, and $\frac{c+Ri}{1+R}$ to the highest income class.

Once desired program mix is decided upon, the second allocation problem must be faced; the allocation of funds to areas must be determined. Since the aim is to allocate funds disproportionately to unemployed teenagers in low income families, a useful procedure is to allocate funds to areas in proportion to the number of unemployed teenagers in poor families. This has the attraction of allocating toward the index--low income--which the programs are trying to bolster.

Suppose teenage unemployment is viewed as having long run rather than just short run effects. In this case, how is the allocation decision to be made? Once again it is useful to distinguish between program mix decisions and funds allocation decisions given program mix.

In designing youth employment programs, one is faced with a tradeoff between the goals of immediate job creation and future employability. Emphasis on future employability as opposed to job creation would seem to favor programs that devoted resources to structured work, training, and supervision for participants. Since the costs per job provided would tend to be higher in programs emphasizing future employability than in those aimed at job creation, the decision maker would face a trade-off between number of jobs and training slots.

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[13] One specific aspect of choosing efficient programs needs to be mentioned. Since the problem being attacked is teenage unemployment, programs which admit teenagers who are not unemployed are unlikely to be in the efficient set. Thus, efficient programs are likely to require that only unemployed teenagers be eligible. More generally, choice of program mix and choice of eligibility requirements are part of the same decision.

The distinction between immediate vs. lifetime impacts of teenage unemployment is certainly relevant to the evaluation of this trade-off. Suppose reduction in future employability was the major undesirable impact of teenage unemployment; then a program mix would be chosen which emphasized future employability and training. However, this decision would not completely solve the allocation problem. Given this program mix, decisions would still have to be made concerning the allocation of funds to different geographical areas.

In our previous analysis, when teenage unemployment was viewed solely as a short run problem, the choice of geographical allocation guidelines seemed fairly straightforward. This is so because lack of employment by itself reduces the family income of unemployed teenagers. Thus, the only policy issue is weighting income losses experienced by different income classes. Once the appropriate social welfare function has been specified, funds can be allocated by the relative number of "deserving" families in different regions. In contrast, it is less certain that teenage unemployment by itself causes future unemployability. Thus one must consider how allocation guidelines would vary with different hypotheses about the link between teenage unemployment and future adult employability.

Suppose one accepted the proposition that teenage unemployment per se reduced employability as an adult. Then the teenage unemployment problem would be severest in regions with the most unemployed teenagers. Youth employment and training funds could therefore be allocated solely on the basis of number of unemployed teenagers.

An alternative hypothesis would be that diminished future employability is not caused solely by teenage unemployment, but rather by the interaction of teenage unemployment with other factors such as race and low income family status. In this case, exclusive reliance on unemployment data in making allocation decisions would not be appropriate. For example, suppose that teenage unemployment implied higher adult unemployment only for teenagers in low income families. Then two regions could have equal numbers of unemployed teenagers yet face unequal long-term teenage unemployment problems. This would suggest that youth employment funds be allocated according to the number of unemployed youths in low income families. Similarly, if future employability problems were relatively more severe for unemployed nonwhite youths, allocation of funds on the basis of youth unemployment and race would be appropriate.

Finally, we briefly consider the issues raised by the distinction between cohort-specific versus nonspecific effects. If high levels of teenage unemployment are confined to a particular age cohort, the benefits per dollar spent on information gathering would be less than if teenage unemployment were expected to effect cohorts of youths in the future. However, if relatively high teenage unemployment was not confined to a specific age cohort, funds should be allocated in part with reference to the potential for obtaining policy-relevant information. That is, regardless of program mix, the absence of cohort-specific effects would imply that relatively more funds be devoted to obtaining feedback on each program. Moreover, in each program mix, more funds should be allocated to programs that are policy experiments.

In summary, the differences between the short-term and the long-term effects of teenage unemployment imply some differences in allocation criteria. In both the short- and long-run case, it is useful to separate conceptually allocation decisions pertaining to desired program mix from decisions about the allocation of funds to different regions given program mix. Desired program mix cannot be decided on the basis of simple statistical indicators. When dealing with the short-term effects of teenage unemployment, specification of program mix is dependent on explicit or implicit specification of a social welfare function. Similarly, evidence on the long-term effects of teenage unemployment is needed to choose the desired mix of programs emphasizing job creation and programs emphasizing future employability.

Once the desired program mix has been chosen, scarce program funds must be allocated to different regions. The choice of the appropriate allocation statistic depends on one's views about the nature of the unemployment problem. Finally, one's views about the existence of cohort-specific effects determine the portion of funds allocated to information gathering.

III. ALLOCATION GUIDELINES IN THE YOUTH EMPLOYMENT DEMONSTRATION PROJECTS ACT

The Act specifies a number of different programs, eligibility requirements for each program, and fund allocation limitations on each program. How consistent is this complex set of regulations with the preferred allocation rules derived above? Our preferred solutions contained separate program mix and fund allocation rules. The Act maintains this distinction; it establishes a centrally determined program mix, at least for major program divisions. However, the similarity between our allocation rules and those of the Act breaks down for less aggregate program mix choices. When teenage unemployment is viewed as a short-run phenomenon, we suggested identical program mixes in each region. However, the Act does not ensure identical program mix by region, since within several broad program categories it allows each area to initiate and design its own programs, subject to some central review. This departs from the recommended solution, thereby implying that marginal benefits per dollar need not be identical across regions.

There are, however, a number of considerations which might justify the Act's procedure. First, suppose that teenage unemployment has long-run effects. In this case, regions might differ in crucial respects, making an identical policy mix across regions less attractive. For example, suppose that long-run effects are most severe for particular demographic groups. If particular groups are not uniformly represented across areas, and different programs work better for some groups than others, different mixes in different areas are desirable. It is not clear, however, that the program selection features of the Act are designed to ensure assignment of the most appropriate programs to each area. A second argument for program diversity across areas involves organizational ability. If areas differ with respect to organizational and administrative skills, local program initiation and design may be more likely to produce programs tailored to local capabilities. Third, if it is not known which programs are the most effective, local initiation may provide a forum for experimentation and development of new program ideas. Finally, it can be argued that CETA (the act which YEDPA amends) considers local autonomy for the prime sponsor as a basic value in itself.[14]

Turning from program mix to funds allocations, we can again ask how close these funds allocations are to our recommendations. If teenage unemployment is viewed solely as a short run phenomenon, our solution suggested that funds be allocated according to the number of unemployed teenagers in poor families. If, on the other hand, teenage unemployment is viewed as having longer run effects, allocation rules would vary with different hypotheses about the link between teenage unemployment and long-term employment problems.

Consider first the Youth Community Conservation Improvement Projects (YCCIP). Seventy-five percent of the available funds go to the states according to the relative number of unemployed persons within each state, subject to minimum percentage requirements for each state and areas such as Guam. The remainder is for discretionary use by the

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[14] We owe this point to a referree. Indeed, the same referree also argues, consistent with our third point, that the development of knowledge through experimentation is a major reason for not specifying program mix in advance.

Secretary of Labor. The entire amount is subject to the requirements that at least 2% be used for native American youth and 2% for youth in migrant and seasonal farmworker families. At least with respect to the 75% of YCCIP funds allocated directly to states, the funding rules do not seem consistent with our guidelines for allocating funds to deal with short run effects of teenage unemployment. The Act allocates funds primarily by number of unemployed persons, whereas the preferred allocation would be by numbers of unemployed teenagers in low income families.

One might ask whether the YCCIP funding rules would be appropriate if teenage unemployment is viewed as having long run impacts. However, the Federal Register discussion of the Act seems to portray YCCIP as a program aimed at short run problems, placing predominant emphasis on the development and provision of jobs.[15] Any training must be directly related to the development of specific skills needed for the job.

Consider next the Youth Employment and Training Program (YETP) component of the Act. The basic allocation guidelines are as follows: (1) 75% of the funds are made available directly to local prime sponsors and 5% to governors. Of this 80%, 37.5% is allocated both across and within states by the number of unemployed persons, 37.5% is allocated by the number of unemployed persons residing in areas of substantial unemployment, and 25% by the number of persons in low income families; (2) 22% of the 75% given to prime sponsors must be used for programs serving in-school youth; (3) at least 2% of the overall funds must be used for native American youth and 2% for youth in seasonal and migrant farmworker families. The remaining funds can be dispersed at the Secretary of Labor's discretion.

If unemployment is perceived to be a short run phenomenon, we argued that funds should be allocated according to the number of poor unemployed teenagers. The Act's rules seem to differ from this benchmark. Seventy-five percent of the funds are allocated according to the number of unemployed persons, not the number of unemployed teenagers. In addition, while 25% of the funds are allocated on the basis of poverty population, poor persons rather than poor teenagers are used as the index.

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[15] Federal Register, Vol. 42, No. 180, September 16, 1977, p. 46730.

The Federal Register states that YETP's purpose is:

> not ... to provide make-work activities but rather to provide youth, especially economically disadvantaged youth with opportunities to learn and earn which will lead to meaningful employment opportunities after they have completed the program.[16]

This seems to imply the YETP is designed to attack presumed long run impacts of teenage unemployment. If so, divergences from recommended allocation rules arise that are similar to those discussed in the short run case. An additional complication is that demographic characteristics other than low income status may need to be taken into account.

Finally, we consider the proposed allocation of funds under the Young Adult Conservation Corps (YACC) and the Youth Incentive Entitlement Pilot Projects (YIEPP). The Labor Department Planning Charter states that YACC will select participants by a "basically random process" with preference given to applicants from areas of "substantial unemployment" (those with a rate of 6.5% or higher).[17] Since YACC relies on total rather than teenage unemployment data to allocate funds, it is subject to the same difficulties discussed above in connection with YICCP and YETP. The final program, YIEPP, combines features of an experimental and demonstration project. Since neither experiments nor demonstration projects are designed to distribute services so as to achieve a desired distribution of benefits, evaluation of the YIEPP guidelines are outside the scope of this paper.

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[16] Ibid., p. 46734.

[17] U.S. Department of Labor, Planning Charter for the Youth Employment and Demonstration Projects Act (Washington: Government Printing Office, 1977).

IV. COMPARISON OF ALTERNATIVE FUNDS ALLOCATIONS

We have argued that several of the allocation guidelines in YEDPA differ from the allocation schemes proposed above. It is possible, however, that differences in concept do not result in significant differences in actual funds allotments. To investigate the empirical impact of using different allocation rules, we compare the distribution of both YCCIP and YETP funds under provisions of the Act with allocations obtained from formulas suggested by our analysis. Table 2 presents the correlation coefficient (r) between the Act's distribution of YCCIP funds and a distribution based on estimated state shares in the number of unemployed poor youth, the recommended allocation if teenage unemployment has only short run effects.[18] We also present the correlation between an approximation of the Act's distribution of YETP funds and distributions implied by two of the formulas consistent with different beliefs about the existence and cause of long run effects.[19] One formula allocates funds on the basis of relative number of unemployed poor youths, the other on the basis of relative numbers of unemployed youths. The correlation coefficient varies between .88 and .97. The significantly higher correlation between the distribution of funds implied by the YETP formula and the formula based on the number of unemployed youths is due to the disproportionate weight given to unemployment in the YETP formula.

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[18] The number of unemployed poor youths by state was estimated as follows. Data from the 1970 census was used because it allowed more extensive disaggregation. First, the number of poor youths by state were obtained by combining numbers of youth aged fourteen to twenty-one in poor families with number of poor unrelated individuals aged fourteen to twenty-four. The slightly different age categories were used because exactly compatible published data were unavailable. The state poverty data were then multiplied by state unemployment ratios (number of unemployed divided by population) for fourteen to twenty-one-year-olds, also obtained from published 1970 census data. While unemployment ratios actually measured for poor youths would be desirable, these were not available from published data. The authors believe that the magnitude of error is unlikely to be significant in estimating the relative impact of different allocation schemes. See U.S. Census, Detailed Population Characteristics, Tables 166 and 207.

Though the correlation falls when the Act's formulas are compared with alternatives that give more weight to poverty, the correlations obtained are still relatively high. However, this does not necessarily mean that the allocations of funds would be similar under alternative formulas. This is readily seen in Table 3, which presents the percentage allocation of YCCIP and YETP funds to regions under alternative

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19. In order to approximate the distribution of funds under YETP, the following procedure was used. For the 37.5% of relevant YETP funds allocated according to the total number of unemployed in each state, census data on unemployment of individuals sixteen and over was used. For the 37.5% of YETP funds allocated to states according to the number of individuals in areas of substantial unemployment, the actual 1973 measures used in making CETA allocations for Fiscal 1974 were employed. These were obtained in unpublished form from the Employment and Training Administration, U.S. Department of Labor. The 1973 data were used since the actual CETA procedure for specifying areas of substantial unemployment is complex and nonreproducable , so that determining what such areas would have been in 1970 if CETA had existed is impossible. The year 1973 was used because that was the first year after 1970 that such figures were calculated. For the 25% allocated according to the number of persons in families below a particular low income line, we used census data on the number of family members below 125% of the poverty line. While this is conceptually appealing, and consistent with the language in the Act, it does differ from the actual administrative procedure, which fails to allow for different income cutoffs by family size! We believe that using the administrative procedure would have resulted in larger empirical divergences between the recommended allocation rules and those in the Act than those reported in the text. Census data used in the YETP calculation are from U.S. Census, Detailed Population Characteristics, Tables 168 and 207.

allocation schemes. For example, relative to the distribution of funds implied by the Act, formulas based on poverty as well as unemployment would distribute significantly less funds to the Northeast and North Central states and significantly more funds to Southern states. These results may, of course, be subject to qualification due to regional price level differences, existence of state and local minimum wage laws, and other difficulties.[20]

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[20] A referree suggested these qualifications. If there are price disparities across regions, dollar allocations may need to be adjusted for purchasing power differences. Such an adjustment would probably result in a decline in the percentage allocation going to the South, and a rise in the percentage allocation going to the Northeast. Unfortunately, the art of measuring such regional differentials is still quite primitive, and there is reason to believe that frequently used measures overstate differences (see, for example, Mark Sherwood "Family Budgets and Geographical Differences in Price Levels," Monthly Labor Review, vol.98, April 1975, pp. 8-15 and Timothy Smeeding, "Measuring the Economic Welfare of Low Income Households, and the Antipoverty Effectiveness of Cash and Non-Cash Transfer Programs," unpublished Ph.D. dissertation University of Wisconsin, 1975). Moreover, there are a variety of existing federal transfer programs which do not make such corrections, and there exists considerable controversy concerning the appropriateness of such corrections. State and local minimum wage laws raise two issues. First, suppose that a particular state has a minimum wage law that raises teenage unemployment (either because the state minimum wage is higher than the federal, or because it covers some jobs the federal minimum wage does not cover). That state is "rewarded" for its high minimum wage by getting more federal funds under our proposed allocation formula. Even if one wanted to "correct" for this result, it is not obvious how one would do so. Second, if the state minimum wage law requires higher pay for some teenage job-creation programs, the same amount of dollar funds will not create as many job slots in that state. This problem bears a resemblance to the regional price variation problem. A final difficulty concerns teenage unemployment among illegal aliens and other "undocumented workers." To the extent that the measured unemployment rate fails to include these individuals, areas with heavy concentrations of such individuals may be getting smaller allocations than their "true" unemployment situation warrants. Of course, one's views on this issue depend on one's beliefs about whether government programs should be concerned with unemployment of illegal aliens along with "native" unemployment.

Our calculations indicate that different series may produce different funds allocations by state. Our analysis implied that funds be allocated on the basis of detailed characteristics of unemployed teenagers readily available only in the decennial census. Since funding decisions must be made yearly, however, ways of using annual data to generate allocation rules would have to be developed. We now consider how census information could be used to improve the quality of these rules.

There are many series--various unemployment rates, poverty rates, and so forth--which have some relevance for allocation decisions. How can these series be combined to produce information as close as possible to census data? Suppose that teenage unemployment is viewed as a short run phenomenon, so that the desired allocation statistic is the number of unemployed poor teenagers. Unfortunately, this statistic is not available annually. Suppose, however, that separate series on unemployment and poverty by state were available. These two statistical series could be combined to form a proxy for the desired statistic through regression analysis. Cross-section data on the number of unemployed poor teenagers obtainable from the 1970 Census could be regressed on 1970 observations of the annually available series on unemployment and poverty. The estimated regression could then be used in subsequent years to estimate the number of unemployed poor teenagers from the annually available data.

Two comments on this procedure are relevant. First, the actual choice of unemployment or poverty series would be based on statistical criteria, such as goodness of fit. Second, the attractiveness of this procedure depends on the stability of the estimated relationship through time. Third, for any choice of series this procedure has the attraction that those series would be combined on the basis of their relationship to the desired allocation statistic, rather than through ad hoc weights.

TABLE 2

COEFFICIENT OF CORRELATION (r) BETWEEN THE DISTRIBUTION OF YCCIP AND YETP FUNDS UNDER ALTERNATIVE ALLOCATION RULES

r Between the Act's distribution of YCCIP funds and distribution of funds according to state shares of unemployed poor youths.	.90 (.83-.94)*
r Between the Act's distribution of YETP funds and distribution of funds according to state shares of unemployed poor youths.	.88 (.80-.93)
r Between the Act's distribution of YETP funds and distribution of funds according to state shares of unemployed youths.	.97 (.95-.99)

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*Numbers in parentheses are the 95 percent confidence intervals for the correlation coefficients.

TABLE 3

PERCENTAGE ALLOCATION OF YCCIP AND YETP FUNDS TO GEOGRAPHICAL REGIONS UNDER ALTERNATIVE ALLOCATION FORMULAS

Region	Percent Allocation Under Act's YCCIP Formula	Percent Allocation Under Act's YETP Formula	Percent Allocation Based on State Shares of Unemployed Poor Youths	Percent Allocation Based on State Shares of Unemployed Youths
Northeast	22.2	24.8	13.1	18.2
North Central	27.1	24.6	22.4	30.0
South	26.2	27.2	42.4	28.5
West	24.6	23.4	22.1	23.3

V. SUMMARY AND IMPLICATIONS

Several results have emerged from our analysis. First, it is useful to separate conceptually program mix decisions from funds allocation decisions given program mix. Second, the appropriate allocation scheme depends on whether the bad effects of teenage unemployment are believed to be temporary or permanent. Third, different allocation statistics can result in divergent distribution of funds. Fourth, even though annual data on desired allocation statistics may not be available, it may be possible to construct reasonably good proxies from available data. Specifically, we have suggested a potentially useful method for combining series based on regression techniques.

The Act already specifies the way in which a majority of funds must be allocated. However, there remains a sizable block of funds for which specific allocation rules have not been mandated. Two alternative approaches for allocating these funds may be identified. One procedure would be to decide de novo on a desired program mix and then allocate funds given program mix using the general guidelines set forth above. An alternative approach based on "second best" considerations would be to: (1) calculate a desired overall distribution, (2) determine the divergence between the desired distribution and that resulting from allocation formulas specified in the Act, and (3) distribute discretionary funds so as to offset this divergence.

LOWERING YOUTH UNEMPLOYMENT: HOW MUCH AND AT WHAT COST?

By: Paul O. Flaim

and

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ABSTRACT*

This paper examines the issue of how low the unemployment rate for youths might be brought, and points out that for the entire sixteen to twenty-four group the rate has never averaged less than 8% for any year since the Korean War. In addition, we found that in some recent "full-employment" estimates the youth jobless rates have been pegged even higher.

With regard to the wages that would have to be paid to youths placed in job programs, we presented several distributions, all of which show a large dispersion. Many youths, particularly in the sixteen to nineteen group, are apparently willing to work for less than the federal minimum. At the same time, many others, particularly those twenty to twenty-four, are generally earning much more--and expect to earn much more--than the minimum.

The averages from these earnings distributions were used along with the Federal minimum, to compute some illustrative estimates of what it might have cost in 1976 to place enough unemployed youths in jobs so as to lower their incidence of unemployment to the levels of 1969 and, alternatively, to those of 1973. The lowest cost estimates were obtained by using the federal minimum and the highest by applying the "prevailing earnings" of employed youths.

INTRODUCTION

The purpose of this paper was to make some estimates of what it might cost to put the unemployed youth to work given various assumptions as to how low their unemployment rate could be brought and as to how much they would have to be paid in order to get them to take jobs. In making these estimates, we had to examine various questions, such as:

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* The estimates and opinions which are presented in this paper do not necessarily reflect the views or have the endorsement of the Bureau of Labor Statistics.

(1.) Would it be possible--or even desirable--to find or create jobs for all of the unemployed youth?

(2.) If not, how many could be realistically placed into job programs?

(3.) What type of jobs--full time, part time, minimum wage, or otherwise--would these have to be?

(4.) Might the availability of such jobs bring additional youth into the labor market and thus vitiate the efforts to lower the group's unemployment?

(5.) If so, could it still be determined objectively whether the job programs have been a success, a partial success or a failure?

In examining these difficult questions, we had access to some interesting new data on unemployed youths as well as to the traditional historical series. And while the new data, which will be discussed below, do not go very far toward answering the questions posed above, they should shed some useful light on these issues.

HOW LOW CAN YOUTH UNEMPLOYMENT BE BROUGHT?

Most people would readily agree that youth unemployment cannot be eliminated in its entirety; that there is some minimal, "natural," or "frictional" rate of unemployment for every population group; and that for youth--the group most lacking in skills and experience--this rate is higher than for any other group. The problem is that such a rate is not readily available. Even if sought through empirical research and a most detailed look at the data, such a rate would prove to be very elusive. At best, research might yield a range within which such a rate might be located.

While the search for such a rate is outside the scope of this paper, history does provide some guidelines as to the lowest levels attained by the unemployment rate for youth under various economic conditions. As shown in Table 1, for example, the rate for youth sixteen to nineteen has never been below 10% since the end of the Korean War. And this period includes some years--such as 1955 and 1956, and then again 1969--when the economy is generally regarded as having operated at or possibly even above its full-employment potential.

As for the rate for youths twenty to twenty-four years of age, it only dipped below 6% in four years over the 1954-1977 period. This was during the Vietnam war when much of the potential labor force in this age group was being syphoned off into the Armed Forces (and when quite a few of these youths prolonged their schooling or skipped the country in order to avoid the draft).

If we look at the jobless rate for the entire sixteen to twenty-four group, we see that it has never been below 8% since the mid-1950's. Over this period there were seven years in which it dropped to the 8-9% range, but somehow it seemed unable to move below this range. And here we might note that if youths spent one-twelfth of their labor force time in the job search process--that is, one month a year if they are in the labor force all year--unemployment among their group would average 8.25%, very much in line with the "lows" attained by their jobless rate over the past two decades.

And there are those who would peg the unemployment goals for youths even higher for the current years. They would do so generally on the basis that the youth's proportion of the labor force has increased considerably since the mid-1960s and that the resulting "crowding effect" has gradually raised what one might call the "natural" unemployment rate for youths. Thus, Michael L. Wachter, in computing a "non-inflationary unemployment rate" for the nation, which he estimated to be 5.5% for 1975, pegged the youth rates for the same year at 15.7% for males sixteen to nineteen, 8.2% for males twenty to twenty-four, 16.9% for females sixteen to nineteen and 9% for females twenty to twenty-

TABLE 1.

UNEMPLOYMENT RATES FOR YOUTHS 16 TO 24 YEARS OF AGE: ANNUAL AVERAGES, 1954-1977

Year	Total, 16 to 24 years	16 to 19 years			20 to 24 years
		Total, 16 to 19 years	16 and 17	18 and 19	
1954	10.6	12.6	13.5	12.0	9.2
1955	8.7	11.0	12.3	10.0	7.0
1956	8.5	11.1	12.3	10.2	6.6
1957	9.0	11.6	12.5	10.9	7.1
1958	13.1	15.9	16.4	15.5	11.2
1959	11.0	14.6	15.3	14.0	8.5
1960	11.2	14.7	15.5	14.1	8.7
1961	13.0	16.8	18.3	15.8	10.4
1962	11.3	14.6	16.2	13.6	9.0
1963	12.2	17.2	19.3	15.6	8.8
1964	11.5	16.2	17.8	14.9	8.3
1965	10.1	14.8	16.5	13.5	6.7
1966	8.6	12.7	14.8	11.3	5.3
1967	8.7	12.9	14.7	11.6	5.7
1968	8.7	12.7	14.7	11.2	5.8
1969	8.4	12.2	14.5	10.5	5.7
1970	11.0	15.3	17.1	13.8	8.2
1971	12.7	15.9	18.7	15.5	9.9
1972	12.1	16.2	18.5	14.6	9.3
1973	10.5	14.5	17.3	12.4	7.8
1974	11.8	16.0	18.4	14.2	9.0
1975	16.1	19.9	21.4	18.9	13.6
1976	14.7	19.0	21.1	17.4	12.0
1977	13.6	17.7	19.9	16.2	10.9

four.[1] And Peter Clark, in arriving at a 5.1% "high employment benchmark unemployment rate" for 1977, pegged the youth rates at the following levels: 14.8% for males sixteen to nineteen, 7.1% for males twenty to twenty-four, 17.7% for women sixteen to nineteen, and 9.1% for women twenty to twenty-four.[2]

As shown below, while Wachter's and Clark's unemployment "goals" for youths in 1975 and 1977 are substantially lower than the actual rates experienced by youths in recent years, they are still much higher than the rates which had been achieved by youths in 1969. Wachter's estimates, in particular, are even somewhat higher than the rates experienced by youths in 1973, when the overall unemployment rate for the nation (4.9%) was at about the halfway point between the 1969 rate (3.5%) and the current rate (6.4% as of December 1977). Only as the youth groups diminish in size relative to the other population groups--a development that is now in its initial stages and which will continue through the 1980s, given the sustained decline in the birth rate during the 1960s and early 1970s--would the jobless rates for youths, as estimated by Wachter and Clark, be expected to decline much below their 1973 levels.

Nevertheless, while cognizant of the Wachter and Clark estimates shown above, we still decided to use the actual numbers for 1969 and 1973 as the benchmarks for our calculations of the size and cost of the youth job deficit. In essence, what we did was to calculate what it would cost to lower the unemployment rates for youths from the 1976 levels to the 1969 levels and, alternatively, what it would cost to span the much narrower differences between the 1976 rates for youths and those for 1973. In so doing, we are endorsing neither the 1969 nor the 1973 rates as the most desirable goals. We make no such judgments, although we are aware that many will regard the 1969 rates as too low and highly inflationary, while many others might regard the 1973 rates as still far too high. Yet others might look at the data for specific groups of youth, such as black teenagers, and argue that even the 1969 rate for this group (24%) was excessively high.

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[1] Michael L. Wachter, "The Demographic Impact on Unemployment: Past Experience and the Outlook for the Future," in Demographic Trends and Full Employment, Special Report Number 12 of the National Commission for Manpower Policy, Washington, D.C., 1976, pp. 27-99.

[2] Peter K. Clark, "Potential GNP in the United States: 1948-1980" in U.S. Productive Capacity: Estimating the Utilization Gap," Center for the Study of American Business, Washington University, St. Louis, Mo., December 1977, p. 37.

It is simply that, as we shall see below, the method we chose for making our alternative sets of cost estimates dictated the use of data on the distribution of unemployment for given years. And the juxtaposition of data for 1969 and 1973 with those for 1976 yields estimates which, while differing sufficiently from each other, are within the bounds of historical reality.

WHAT JOBS AND WHAT WAGES FOR YOUTHS?

Even after we had chosen a set of unemployment rates, actual or hypothetical, we still had but one of the three basic factors needed for our calculations. Two other important factors are also needed: the number of hours and weeks of work to be provided to the youths who would have to be placed in jobs in order to reach the desired rates of unemployment and the wages that would have to be paid to them in order to attract them to these jobs.

While the decisions with regard to these issues would, in the final analysis, be made by policy makers, they must be made in light of the desires and aspirations of the youths they would effect. Although these aspirations cannot be pinpointed with precision, new data collected in recent years, combined with data which have long been available, shed considerable light both on the expectations of unemployed youths as well as on the work patterns and earnings of the employed ones.

In terms of the number hours of work that might be possibly provided to unemployed youths, one can look at the very detailed data that have been available for many years on the hours actually worked by employed youth. Also available are data on the unemployed in terms of whether they want a full-time or a part-time job, or whether their last job was of full-time or part-time nature.

In terms of the hourly wages that would be required to entice youths to take jobs, one could, of course, assume that the minimum wage could be applied across the board. However, while we have used the Federal minimum to construct some of our alternative estimates, we have found that there is a great diversity among youths both in terms of the actual wages earned by those who are employed as well as in terms of the wage aspirations of those who are looking for jobs. This diversity is amply illustrated in Tables 2, 3, and 4. Tables 2 and 3, which are based on special data collected from a sample of unemployed persons in May 1976, show, respectively, the hourly rates of pay for the last job previously held by unemployed youths and the so-called "reservation wages" in terms of the jobs they were seeking at the time. Table 4, based on data collected each year, shows what employed youths were earning in May 1976.

As shown, while some of the overall averages for these tables (particularly the medians) do not differ widely from the federal minimum wage--which was $2.30 an hour in May 1976--the actual distributions show a considerable dispersion around the averages. For example, the data in Table 2 show that many of the unemployed youths with previous work experience had last worked for wages far below the minimum while many others had apparently earned much more than the minimum. And even when it came to the so-called "reservation wage," or the lowest wages that youths were willing to settle for in their next jobs (Table 3), we again see a large dispersion around the averages. Apparently, many youths were willing to accept wages considerably lower than the minimum (which is still legal in many situations) while many others had much higher expectations. And the earnings distribution for

TABLE 2.

REPORTED HOURLY EARNINGS FOR LAST JOBS HELD BY YOUTHS 16 TO 24 YEARS OLD WHO WERE UNEMPLOYED IN MAY 1976

Age, sex, and race	Total (thousands)	Under $2.00	$2.00 to $2.29	$2.30	$2.31 to $2.99	$3.00 to $3.99	$4.00 to $4.99	$5.00 and over	Mean	Median
Total, 16 to 24 years------	1,001	97	356	87	198	127	72	64	$2.75	$2.30
16 to 19 years------	481	62	217	49	95	32	17	9	2.37	2.20
20 to 24 years------	520	34	139	38	104	95	54	55	3.10	2.50
Males, 16 to 24 years------	542	32	137	51	110	94	60	59	3.11	2.50
16 to 19 years------	269	23	105	30	60	27	14	9	2.54	2.30
20 to 24 years------	273	8	32	21	49	67	46	50	3.67	3.25
Females, 16 to 24 years----	459	65	219	36	89	33	12	5	2.32	2.20
16 to 19 years----	212	39	112	19	34	5	3	--	2.16	2.10
20 to 24 years----	247	26	107	17	54	28	9	5	2.46	2.25
White, 16 to 24 years------	817	76	285	77	156	109	60	54	2.77	2.30
Black, 16 to 24 years------	177	20	71	10	39	17	12	8	2.60	2.25

TABLE 3.

LOWEST ACCEPTABLE HOURLY EARNINGS OF YOUTHS 16 TO 24 YEARS OLD WHO WERE UNEMPLOYED IN MAY 1976

Age, sex, and race	Total (thousands)	Under $2.00	$2.00 to $2.29	$2.30	$2.31 to $2.99	$3.00 to $3.99	$4.00 to $4.99	$5.00 and over	Mean	Median
Total, 16 to 24 years------	1,494	68	387	266	334	279	72	88	$2.75	$2.35
16 to 19 years------	816	46	279	173	184	96	23	15	2.47	2.30
20 to 24 years------	678	22	107	93	151	183	49	73	3.10	2.50
Males, 16 to 24 years-----	784	30	158	104	161	192	59	80	3.05	2.50
16 to 19 years-----	423	25	130	73	94	66	20	15	2.61	2.30
20 to 24 years-----	362	5	27	32	67	126	39	66	3.57	3.00
Females, 16 to 24 years---	710	38	229	161	173	88	13	8	2.42	2.30
16 to 19 years---	394	21	149	100	91	31	3	--	2.32	2.30
20 to 24 years---	316	18	80	61	83	57	10	7	2.56	2.30
White, 16 to 24 years------	1,175	57	301	218	245	220	66	69	2.76	2.35
Black, 16 to 24 years------	302	11	79	48	87	53	6	19	2.74	2.50

TABLE 4.

ACTUAL HOURLY EARNINGS OF EMPLOYED YOUTHS 16 TO 24 YEARS OLD WHO WERE PAID BY THE HOUR, MAY 1976

Age, sex, and race	Total reporting (thousands)	Under $2.00	$2.00 to $2.24	$2.25 to $2.49	$2.50 to $2.99	$3.00 to $3.99	$4.00 to $4.99	$5.00 to $5.99	$6.00 to $7.99	$8.00 and over	Mean	Median
Total, 16 to 19 years-----------	4,770	583	1,016	1,332	898	678	145	70	41	8	$2.52	$2.40
20 to 24 years-----------	6,357	193	371	800	1,070	1,866	1,013	566	403	75	3.60	3.33
Males, 16 to 19 years-----------	2,534	174	531	622	508	467	131	61	36	5	2.70	2.48
20 to 24 years-----------	3,671	42	123	284	520	1,086	736	453	358	68	3.96	3.78
Females, 16 to 19 years---------	2,237	409	486	709	390	211	14	10	5	3	2.32	2.33
20 to 24 years---------	2,685	151	247	515	550	781	278	113	45	7	3.11	2.89
White, 16 to 19 years-----------	4,450	561	919	1,240	854	625	139	65	40	8	2.53	2.40
20 to 24 years-----------	5,570	170	312	645	939	1,667	897	518	367	56	3.37	3.60
Black, 16 to 19 years-----------	321	21	98	92	44	53	5	6	1	--	2.50	2.36
20 to 24 years-----------	787	22	59	155	132	199	117	48	36	19	3.65	3.09

youths who were actually working in May (Table 4) also shows a wide dispersion. The earnings averages for these employed youths were also generally higher than those reported by unemployed youths either in terms of previous or future jobs.

What all of these tables also show, and not unexpectedly, is that youths twenty to twenty-four earn much more--and expect to earn much more--than those sixteen to nineteen years of age. For the older group, the earnings averages, both in terms of actual earnings on past or current jobs as well as in terms of the reservation wages, are considerably higher than the $2.30 minimum wage which prevailed when these data were obtained. Only about one-third of these youths, compared with a little over one-half of those sixteen to nineteen, appear to have been willing to take jobs paying only the Federal minimum.

As shown, the wage aspirations of unemployed black youths did not differ that much from those of unemployed white youths. The medians for blacks were either the same or slightly lower than those for whites. In terms of the means, the pattern was not as consistent, but it must be remembered that here we are dealing with relatively small distributions, where the means can be affected by only a few unusually high values. (Thus, the fact that the mean reservation wages for black teenagers turned out to be slightly higher than that for white teenagers should not be given too much weight.)

The earnings data for youths who are actually employed are perhaps the most relevant in determining what it would cost to put their unemployed counterparts to work. The problem which arises in using these data is that unemployed workers as a group do not have the same characteristics in terms of skills and education as do those who are employed and could not, therefore, be expected to command the same wages. It is only after account is taken of the major differences in personal characteristics between employed and unemployed youth that the earnings data for the former can be used to figure out what it would cost to employ the latter.

Earnings averages which do take into account such differences, both for the unemployed youth as well as for older unemployed persons, were recently developed by applying regression analysis to the data on usual weekly earnings that are collected each May. These regression-derived estimates show what the weekly earnings of the unemployed would have been, assuming that they would have received the same rates of pay as did employed persons who had the same characteristics in terms of age, sex, race, education, occupation, geographic residence, and full- or part-time status.[3] While the distributions of such hypothetical earnings were not tabulated, averages were computed for various youth groups as well as for older workers.

By using this "peer group" methodology, it was estimated that the average (mean) amount of earnings lost because of unemployment in May 1976 was about $110 a week for males sixteen to nineteen, $85 a week for females sixteen to nineteen, $158 a week for men twenty to twenty-four, and $135 a week for women twenty to twenty-four. These "peer group" estimates, which might be regarded as representing the "potential" prevailing earnings of unemployed youths--provided, of course that they had access to the same mixture of jobs as were then being held by employed youths and that the wage structure would remain the same--have been used to make one of the alternative sets of calculations of the total cost of lowering youth unemployment. Different calculations were made on the basis of the reservation wages and on the basis of the federal minimum.

ESTIMATING THE YOUTH WAGE BILL

After settling on two sets of unemployment benchmarks for youths,

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3. Paul M. Ryscavage and Curtis L. Gilroy, "Earnings Foregone by the Unemployed," in Proceedings of the Business and Economics Statistics Section, American Statistical Association, 1977, pp. 654-9.

that is, the incidence of unemployment encountered among them in 1969 and in 1973, the general procedure used in estimating the cost of reaching these goals was as follows: First we estimated, on the basis of the three wage assumptions, what it would have actually cost in terms of total wages to put all of the unemployed youth to work in 1976--that is, to bring youth unemployment down to zero. We then estimated what it would have cost if the incidence of youth unemployment and its distribution in 1976 were consistent with the situation in 1969 and 1973. We then computed the differences between the actual total wage cost in 1976 and the two hypothetical costs. These differences represent our estimates of the wage costs associated with job programs designed to lower the incidence of youth unemployment from its levels of 1976 to those of 1969 and 1973, when the economy was operating much closer to (or perhaps even slightly above) its full potential.

The job deficit. The statistics that were used to determine how many youths would have to have been placed in jobs in 1976--and for how long--in order to achieve these goals were those from the annual "work experience" survey. These data show the total number of youths who encounter one or more spells of unemployment during the year, as well as the total length of their unemployment.[4] For 1969, a year when the unemployment rate for the nation averaged only 3.5% and the rate for youths sixteen to twenty-four averaged 8.4%, these "work experience" numbers show that a total of 4.8 million youths encountered one or more spells of unemployment during the year (See Table 5). These 4.8 million youths accounted for 16.4% of their civilian noninstitutional population.

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[4] The total number of different persons who encounter some unemployment during any given year is obtained through special questions which are asked each March and which relate to employment and the number and duration of possible spells of unemployment encountered during the year. In a loose way, these "work experience" numbers may be regarded as an aggregation of the "flows" into and out of unemployment during a given year, whereas both the monthly and the annual average numbers might be regarded as reflecting the "stock" or the average of various measurements of the stock taken during the year. In theory, these two sets of numbers should be consistent with each other in terms of yielding the same number of person-weeks and person-hours of unemployment for a given year. In practice, however, these two sets of data have been found to yield somewhat different aggregates. For youths, in particular, the work experience data have been found to underestimate unemployment relative to the estimates obtained from the monthly survey. For a detailed discussion of the different estimates of unemployment that emerge from the "stock" and from the "flow" measurements, see R.D. Morgenstern and N.S. Barret, "The Retrospective Bias in Unemployment Reporting by Sex, Race, and Age," Journal of the American Statistical Association, June 1974, pp. 335-57.

During 1976, the number of youths who encountered at least one spell of unemployment was 8.5 million, or 24.1% of the youth's civilian noninstitutional population. In order to quantify properly the difference between the number of youths who would have been unemployed in 1976 had the 1969 condition prevailed, but still allow for the growth in population between these two years, the proportion of youths who encountered unemployment in 1969 was applied to the 1976 youth population. The difference between the actual numbers for 1976 and the hypothetical ones based on 1969 proportions represented the number of youths that would have to be placed in jobs of various duration in 1976 in order to bring their rates of unemployment to 1969 levels (Table 5). The same procedure was then followed to calculate the number of youth that would have required jobs in 1976 in order to lower their incidence of unemployment to the levels encountered in 1973. According to these procedures, 2.8 million youths would have needed jobs of various duration in 1976 in order to bring their group's joblessness to 1969 levels. About 1.9 million would have needed jobs of various duration in order to reduce their group's jobless rates to 1969 levels.

The next step in the estimating procedure was to calculate for how long each of these youths would have to be employed in terms of weeks and whether the jobs to be provided them would have to be of a full- or part-time nature.[5] In order to do this, the percent distributions of

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[5] It was assumed that youths whose longest job during the year was of full-time nature would be looking for full-time jobs, while those whose longest job was of part-time nature would have wanted part-time jobs. The small group who had looked for work but did not have a job during the year was divided into two equal parts, with half assumed to have been looking for full-time work and half assumed to have wanted part-time jobs.

TABLE 5.

UNEMPLOYMENT RATES AND THE EXTENT OF UNEMPLOYMENT AMONG YOUTH, 1969, 1973, AND 1976

Selected characteristics by age	Actual data for:			Hypothetical data for 1976 if unemployment were distributed as in:	
	1969	1973	1976	1969	1973
Annual average unemployment rate, all persons 16 years and over------------------	3.5	4.9	7.7	--	--
Youth unemployment rate, 16 to 24 (percent)-	8.4	10.5	14.7	8.4	10.5
Teenage unemployment rate, 16 to 19------- (percent)	12.2	14.5	19.0	12.2	14.5
Young workers' unemployment rate, 20 to 24 (percent)------	5.7	7.8	12.0	5.7	7.8
Civilian noninstitutional population 1/ 16 to 24 years of age (000)----	29,382	33,531	35,405	35,405	35,405
Percent of youth population with some unemployment during year------------------	16.4	18.8	24.1	16.4	18.8
Persons 16 to 24 years of age with some unemployment during year (000)-------------	4,827	6,306	8,524	5,806	6,658

1/ These are the noninstitutional population counts for the month of March following the year of reference.

youth unemployment for 1969 and 1973 (in terms of age, sex, full or part-time status, and length of unemployment) were applied to the hypothetical levels of unemployment for 1976. The resulting distributions of unemployment were then costed out according to several different assumptions about the wages to be paid.

It should be noted that an important assumption that is implicit in this procedure is that short-duration unemployment can be dealt with through job creation as effectively as unemployment of longer duration. Yet it is doubtful that much could be realistically done through job programs to deal with unemployment of short duration--say, that lasting four weeks or less. And, as can be seen from Table 6, a very large proportion of the youths who encountered some unemployment in 1976 were jobless for only very short periods.

Another critical assumption that was made is that, if placed in job programs, these youths would have remained there only for as long as they would have been unemployed if they had not taken these placements. In other words, no allowance was made in making these estimates for any possible increase in the labor supply of youths in response to these programs. This is, admittedly, another very questionable assumption.

Youth's wages and earnings. In order to produce a range of estimates associated with the youth job deficit we used the minimum wage, the lowest acceptable wages and the prevailing earnings of youth in our calculations.

In so doing, we first assumed that the minimum wage of $2.30 would have applied across the board to all unemployed youth, regardless of age, sex, or type of job last held. On the other hand, the calculation based on the lowest acceptable wages and the peer group earnings (or "prevailing earings") made use of different averages (means) for specific age-sex groups. Specifically, four different lowest acceptable wage levels (by age and sex) were applied to the lost hours of unemployment accumulated by youths, while eight different peer-group earnings levels (by age, sex, full-time and part-time status) were applied to

TABLE 6.

DISTRIBUTION OF YOUTHS WITH SOME UNEMPLOYMENT IN 1976 BY NUMBER OF WEEKS UNEMPLOYED

Age, sex, race, and work status during year	Total with some unemployment (thousands)	Percent distribution by total weeks of unemployment						Percent with:	
		Total	1 to 4 weeks	5 to 10 weeks	11 to 14 weeks	15 to 26 weeks	27 weeks and over	2 spells of unemployment	3 or more spells
WORKED AT LEAST PART OF YEAR									
Total: 16 and 17 years-------	889	100.0	39.6	19.5	10.4	16.8	13.7	17.3	16.0
18 and 19 years-------	1,819	100.0	31.9	21.2	11.4	17.2	18.3	21.2	15.3
20 to 24 years--------	4,540	100.0	28.1	20.2	12.0	22.6	17.1	18.2	15.9
Male : 16 and 17 years-------	463	100.0	34.0	19.2	10.2	18.0	18.5	20.7	17.4
18 and 19 years-------	966	100.0	28.4	19.9	12.3	17.3	22.1	23.2	17.2
20 to 24 years--------	2,707	100.0	23.7	20.6	12.4	24.3	19.0	20.3	17.7
White: 16 to 19 years--------	265	100.0	31.5	19.6	12.1	17.6	19.2	22.1	17.1
20 to 24 years--------	137	100.0	24.9	21.6	12.4	23.8	17.3	20.2	16.8
Black: 16 to 19 years--------	168	100.0	21.7	18.4	7.7	17.5	34.7	24.8	19.3
20 to 24 years--------	336	100.0	16.8	13.8	12.0	27.8	29.6	22.6	22.5
LOOKED FOR JOB BUT DID NOT WORK DURING YEAR									
Total: 16 and 17 years-------	414	100.0	41.3	20.3	12.1	13.8	12.6	N.A.	N.A.
18 to 24 years--------	862	100.0	32.7	17.2	8.9	11.8	29.4	N.A.	N.A.
Male : 16 and 17 years-------	229	100.0	37.3	21.8	11.4	14.2	15.2	N.A.	N.A.
18 to 24 years--------	328	100.0	20.6	13.4	11.6	10.6	43.8	N.A.	N.A.
Female: 16 and 17 years-------	185	100.0	46.5	18.4	13.0	13.0	9.2	N.A.	N.A.
18 to 24 years--------	534	100.0	40.1	19.5	7.3	12.6	20.5	N.A.	N.A.

N.A.-NOT AVAILABLE

the weeks of unemployment accumulated during the year by the various groups of youths. In the last two cases, we assumed that the wage and earnings levels which were obtained in May were representative of the average for the entire year. (The data relating to the earnings on the last jobs held by the unemployed were not used as the basis for any calculations both because they are, by definition, the most dated, as well as because the averages from these series did not differ that much from those based on the reservation wages. For a fuller description of the sources of the data used and of the assumptions made, see the Technical Note beginning on page 394.)

The results. Table 7 shows what it would have cost in 1976 to put youth back to work at the minimum wage, the lowest acceptable wage, and the prevailing earnings of youth, both by using data for 1969 and 1973 as the benchmarks. As shown, paying the 2.7 million unemployed youths the same earnings as their employed counterparts would have been the most expensive way to lower the youth jobless rate. Using this wage scenario--and all the other assumptions that had to be made--we estimated that it would have cost $8.9 billion to reach the 1969-based goals and $6.0 billion to reach the 1973-based goals. On the other hand, under the minimum wage scenario it would have cost $5.7 billion to lower the 1976 incidence of youth joblessness to 1969 levels and $3.8 billion to lower it to the 1973 levels.

A closer examination of the youth wage bill under each different wage-earnings scenario can be made from Table 8, where the costs based on the various assumptions are broken down by age-sex group. It is not too surprising to see that the greatest cost would be incurred in providing jobs to workers age twenty to twenty-four (especially males). Such workers are most likely to be receiving higher wages than teenagers and to be seeking full-time jobs. For all workers aged twenty to twenty-four the wage bill would have amounted to $7.0 billion under prevailing wages and $4.0 billion if the minimum wage were used as the standard. In contrast, even under the prevailing earnings assumption, the cost of putting teenagers sixteen to nineteen to work would have

TABLE 7.

ESTIMATED COSTS OF PUTTING UNEMPLOYED YOUTHS TO WORK IN 1976 ACCORDING TO VARIOUS ASSUMPTIONS ABOUT THE INCIDENCE OF YOUTH UNEMPLOYMENT AND THE WAGE RATES FOR YOUTHS

Number of unemployed and wage rate assumptions	Actual data for 1976	Hypothetical data for 1976 based on 1969 incidence of unemployment	Job deficit and cost (1) - (2)	Hypothetical data for 1976 based on 1973 incidence of unemployment	Job deficit and cost (1) - (4)
	(1)	(2)	(3)	(4)	(5)
Number of persons 16 to 24 with some unemployment during year (in thousands)---	8,524	5,806	2,718	6,658	1,866
Costs of wage bill (in millions of dollars) at:					
Prevailing earnings-------	$14,776.9	$5,830.5	$8,946.4	$8,830.4	$5,973.5
Lowest acceptable wage----	12,104.4	4,641.1	7,463.3	7,130.2	4,974.2
Minimum wage--------------	9,391.9	3,715.9	5,676.1	5,617.9	3,774.1

TABLE 8.

REDUCTION IN YOUTH UNEMPLOYMENT AND ITS COSTS IN 1976 UNDER VARIOUS EARNINGS AND WAGE ASSUMPTIONS

Groups	Reduction in unemployment (000)	Prevailing earnings (000,000)	Lowest acceptable wage (000,000)	Minimum wage (000,000)
Assuming the 1969 incidence of youth unemployment				
Total youth	2,718	$8,946.4	$7,463.3	$5,606.1
Teenagers, 16 to 19	709	1,914.6	1,872.8	1,695.8
Males	301	1,115.5	1,117.2	986.4
Females	408	799.1	715.6	709.4
Young workers, 20 to 24	2,010	7,031.8	5,630.5	3,980.2
Males	1,268	5,182.7	4,242.9	2,733.5
Females	742	1,849.0	1,387.6	1,246.7
Assuming the 1973 incidence of youth unemployment				
Total youth	1,866	5,973.5	4,974.2	3,774.1
Teenagers, 16 to 19	577	1,282.9	1,241.1	1,142.3
Males	304	758.2	799.6	704.6
Females	273	524.7	441.5	437.7
Young workers, 20 to 24	1,293	4,690.6	3,733.1	2,631.8
Males	851	3,475.4	2,841.3	1,830.5
Females	442	1,215.3	891.8	801.2

amounted to only $1.9 billion, a figure not much higher than that obtained through minimum wage assumptions.

However, as already noted, the minimum wage may not be sufficiently high to attract many of the unemployed youths into jobs, especially those aged twenty to twenty-four. Undoubtedly, many would refuse to take minimum wage jobs, as their lowest acceptable wage is considerably above the minimum wage.

LIMITATIONS AND QUESTIONS

The estimates we have presented should be regarded as merely illustrative as they are subject to many limitations. First of all, they relate to the employment situation for youths during 1976. More current estimates, and even better estimates derived on the basis of projections for future years, would, needless to say, be much more useful for policy guidance. However, 1976 was the last year for which "work experience data" were available and the only recent year in which reservation wages were collected. In order to make such estimates for future years one must not only project the size and distribution of youth unemployment but also make some assumptions about the future course of wages, and this is simply too difficult a task. (For those who would like to attempt such projections, we might indicate two elements whose future course is sufficiently well known: the minimum wage, which has been legislated to rise by specific amounts on specific dates over several years, and the size of the youth population, which is now increasing at a much slower pace than has been the case for the past decade and which will begin to decline rapidly during the early 1980s.)

As already noted, these cost estimates were based on the assumption that short-duration unemployment could be alleviated through job programs as effectively as longer-duration unemployment. This is, admittedly, a very questionable assumption, which we made only with the knowledge that the estimates could be easily reconstructed to exclude the short-duration unemployed from the calculations.[6]

Another obvious limitation of these cost estimates has to do with the quality of the earnings data used as one of the principal ingredients in the estimating procedure. Except for the minimum wage figure, the earnings data we have used have been obtained through the Current Population Survey, and they are subject to response bias as well as to the normal variance associated with such sample surveys. Recent studies have indicated that these household data tend generally to underestimate the true earnings of the workers in question, with the overall averages ranging from 3% to 5% lower than they would be if based on actual payroll records.[7] However, no findings have yet been derived from these studies with regard to the quality of the earnings data for youths. Furthermore, since the "prevailing earnings" statistics for the unemployed were developed through regression analysis, they may be subject to further statistical error and potential bias associated with this estimating device. (And here it might be noted that the even lower reliability of the subnational data on earnings, combined with the paucity of information on the distribution of unemployment at the local area level, discouraged us from even attempting to make any geographically oriented cost estimates.)

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[6] We experimented with such a procedure and calculated that if the goal in 1976 had been to place all unemployed youths in job programs after they had accumulated 4 weeks of unemployment, the wage costs would have been $7.2 billion on the basis of the Federal minimum, $9.3 billion on the basis of the lowest acceptable wages, and $11.4 billion on the basis of the prevailing earnings. Of course, these calculations are based on the assumption that the youths would have remained in these job programs for only as long as they would have remained unemployed if they had not taken these jobs, and this is another questionable assumption.

[7] These are the findings from a "validation" study conducted in January 1977, when the data obtained from the Current Population Survey on earnings of about 4,000 workers were subsequently checked against the records of their employers. While the detailed report on this study has not yet been published, a discussion of the quality of the earnings data derived from the household survey had appeared in a previous BLS report. See Special Labor Force Report No. 195 "Weekly and Hourly Earnings Data from the Current Population Survey", U.S. Department of Labor, Bureau of Labor Statistics, 1977.

It is also important to note, with regard to the cost estimates discussed above, that they are limited purely to the wages that would have to be paid and do not make any allowances for fringe benefits or administrative expenses. Yet we know that such costs would be substantial. In 1974, for example, fringe benefits of various kinds raised the total costs of labor to employers by one third over the pure cost of straight time wages.[8] And while it would be reasonable to assume that the employment of youths would not have to be accompanied by the payment of fringe benefits as costly as those that would generally go to older workers with high seniority, it must be noted that payments for Social Security, workers compensation, and so forth must be made by employers even in the case of newly hired youths--and these payments are not necessarily negligible. As for the administrative costs of running youth job programs, this is an additional cost that must be taken into account but which can probably be better estimated by administrators than by economists unfamiliar with administrative machinery.

Of course, offsetting all these costs, there would also be some obvious benefits that would flow from the employment of large numbers of youths. Presumably, production would increase; disposable income would rise; some youths might be diverted from less desirable endeavors, and so on. But we know of no way even to begin to put a dollar estimate on this side of the ledger.

Finally, one might ask whether the creation of a large number of jobs for youths, particularly if at wage levels that most youth would find quite acceptable, could wind up in attracting many additional youths

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8. BLS Measures of Compensation, U.S. Department of Labor, Bureau of Labor Statistics, 1977, Bulletin 1941, p. 27.

into the labor market and thus vitiate the efforts to lower their unemployment rates. Given the relatively low labor force participation rates of some groups within the youth population--black youths, for example--such a possibility could not be ruled out. There is, in fact, some evidence that this would be the case.[9]

Should such a situation arise, one objective way to assess the impact of job programs would be to focus on the employment-population ratios of the affected groups. After all, if the employment-population ratio for black youths were to remain much lower than that for white youths, as is now the case, something would still be seriously amiss even if their unemployment rate drops sharply. Conversely, an increase in their employment-population ratio should be regarded as a favorable development even if their unemployment rate fails to recede significantly.

SUMMARY AND CONCLUSIONS

In this paper we have examined the issue of how low the unemployment rate for youths might be brought, and pointed out that for the entire sixteen to twenty-four group the rate has never averaged less than 8% for any year since the Korean War. In addition, we indicate that in some recent "full-employment" estimates the youth jobless rates have been pegged even higher.

With regard to the wages that would have to be paid to youth placed in job programs, we presented several distributions, all of which show a large dispersion. Many youths, particularly in the sixteen to nineteen group, are apparently willing to work for less than the federal minimum. At the same time, many others, particularly those twenty to twenty-four, are generally earning much more--and expect to earn much more--than the minimum.

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[9] See, for example, Stanley L. Friedlander, Unemployment in the Urban Core: An Analysis of Thirty Cities with Policy Recommendations. (New York: Praegar: 1972). Reference to the increase in the supply of labor resulting from the creation of a given number of jobs can be found on page 133.

Finally, we used the averages from these distributions, along with the federal minimum, to compute some estimate of what it might have cost in 1976 to place enough unemployed youths in jobs so as to lower their incidence of unemployment to the levels of 1969 and, alternatively, to those of 1973. Although these estimates are based on many assumptions and are subject to many limitations, they illustrate the potential of the demographically-oriented earnings data which have become available in recent years.

TECHNICAL NOTE

SOURCES OF DATA

The cost estimates presented in this paper were developed from data obtained from the Current Population Survey (CPS) conducted by the Bureau of the Census. Specifically, the statistics on youth unemployment during 1969, 1973, and 1976 were collected in the March 1970, March 1974, and March 1977 surveys. These data, along with the employment and unemployment data for other workers, appeared in various issues of the Bureau of Labor Statistics' Special Labor Force Reports (Report #127, #171, and #201). However, some unpublished data from these surveys were also used in the calculations. With respect to the wages and earnings used in the calculations, the lowest acceptable wages of youth were collected in a special CPS survey of the unemployed taken in May 1976 (these data have never before been published); the prevailing earnings of the unemployed were developed through regression analysis that used the usual weekly earnings of employed workers also collected in the May 1976 CPS (see footnotes 3 and 6 of text for specific references).

METHODOLOGY

The general principle involved in estimating the costs of youth unemployment consisted of multiplying the number of person-weeks, or person-hours, of youth unemployment by first, the minimum wage ($2.30 in 1976), second, the lowest acceptable hourly wages of youth, and, third, the prevailing earnings of unemployed youth.

All of the estimates were first developed for eight groups of youth (men, sixteen to nineteen, looking for full-time jobs; men sixteen to nineteen, looking for part-time jobs; women sixteen to nineteen, looking for full-time jobs; women sixteen to nineteen, looking for part-time jobs; and the four corresponding groups of workers age twenty to twenty-four). These estimates were then summed to yield the total cost estimates. The specific steps followed in making these estimates were as follows:

Step 1. Estimating the total costs of youth unemployment in 1976. For each of the eight groups of youth mentioned above, estimates were made of the number of person-hours and person-weeks lost through unemployment in 1976. The number of person-hours lost was used to prepare the cost estimates using the minimum wage and the lowest acceptable wage; the number of person-weeks lost was used in making the estimates based on the potential weekly earnings of the unemployed.

The extent of youth unemployment in 1976 was tabulated in weekly intervals (1 to 4 weeks, 5 to 10, 11 to 14, 15 to 26, 27 to 40, and 40 or more weeks). It was assumed that youths classified in each interval experienced the number of weeks of unemployment represented by the mid-point of each interval (ie. the mid-point of the 1 to 4 weeks interval was 2.5 weeks). Since these calculations yielded estimates of the number of person-weeks of unemployment for each of the eight groups of youth, it was now possible to multiply them by the potential weekly earnings of the unemployed to arrive at one of the three total cost estimates.

To produce the cost estimates based on the minimum wage and lowest acceptable hourly wage, it was necessary to convert the person-weeks of youth unemployment into person-hours. Using forty hours for those seeking full-time work and the actual annual average number of part-time hours worked by youth, person-hours of unemployment for youth in 1976 were estimated. The minimum wage and the lowest acceptable hourly wages were then multiplied by these person-hours to yield the other two total cost estimates of youth unemployment.

Step 2. Estimating the job deficit. To estimate the number of jobs that would have been required to reduce youth joblessness in 1976 to the rates experienced in 1973 and 1969, the following procedure was used: The proportions of the youth population (civilian noninstitutional population) in 1969 and 1973 who experienced some unemployment during these years were applied to the youth population in 1976. The products of these multiplications were then subtracted from the actual 1976 level of youth unemployment to arrive at the size of the job deficits.

Obviously, we have assumed that the proportions of youths experiencing unemployment during 1969 and 1973 are consistent with the rate, or incidence, of youth unemployment in these years.

These hypothetical levels of unemployment for 1976, based on the 1969 and 1973 experiences, were then used to calculate two alternative total costs of youth unemployment.

Step 3. Estimating total costs of youth unemployment in 1976 under two different assumptions about the level and distribution of youth unemployment. To prepare total cost estimates of youth unemployment under two different assumptions about its level and distribution, it was necessary to return to the actual data for those years. The actual percent distributions of youth unemployment were calculated (the eight youth groups mentioned above, cross-classified by weeks of unemployment, comprised the distribution) for both 1969 and 1973. (The same procedure as in Step (1), was used in developing the distribution of person-hours of unemployment.) These two percent distributions were then applied to the two hypothetical levels of unemployment estimated in Step (2). Once the actual numbers of person-weeks and person-hours had been calculated, they were multiplied by the minimum wage, lowest acceptable wages, and prevailing earnings of youths to arrive at the total costs estimates.

Subtracting these two sets of total costs from the actual total costs of youth unemployment in 1976, yielded the costs involved in bringing down youth unemployment to rates experienced in 1969 and 1976.

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THE MEASUREMENT AND INTERPRETATION OF TEENAGE UNEMPLOYMENT IN THE UNITED STATES AND OTHER COUNTRIES

By: Beatrice G. Reubens

ABSTRACT

In comparison with the United States, other advanced countries are less concerned about all-inclusive measurement of unemployment and more concerned about providing programs that aid the vast majority of unemployed teenagers. Because of their recent experience with full employment, these countries are more resistant than we to accepting high rates of unemployment as normal and less inclined to focus heavily on disadvantaged groups, although the latter are not neglected. The age of leaving compulsory school in other countries usually coincides with finishing a recognized and credentialled stage of education, avoiding our ambiguous labor market position of school dropouts who have completed compulsory education. European countries also tend to ignore most unemployment among in-school teenagers during the school year.

It is desirable to separate all statistics for American teenagers into sixteen to seventeen and eighteen to nineteen to list in-school and out-of-school separately within the age groups. Perhaps we should reconsider the labor force activities of sixteen to seventeen in-school youth. In any case, unemployed in-school youth and other part-time workers should be translated into full-time equivalents. The sixteen to seventeen out-of-school population is in need of a variety of services, whether or not they are unemployed. Teenagers who are neither in the labor force nor in school, especially the males and nonwhites, require more investigation and attention.

Although the labor force survey is a preferred method of collecting unemployment statistics, countries with fairly complete registration of unemployment and active local employment service organizations may be in as good or better position to keep track of monthly changes in local unemployment and to recommend and administer youth programs. Whether such registration statistics could be similarly used in the U.S. is questionable, since the facilitating circumstances are lacking.

INTRODUCTION

This paper considers how the United States measures and reports on teenage unemployment in relation to the need of policymakers. Policymakers have to decide what amount, types and location of youth unemployment warrant public policy action. The question is whether sufficient information on youth unemployment is easily available so that policymakers can devise appropriate programs and establish the criteria for admission to those programs, given the prevailing social values and goals. In order to broaden the perspective, the paper will discuss the American situation in comparison with the concepts, methods, data and policies of other countries.

It is beyond the scope of this paper to consider the other, related data about youth and their families that policymakers may desire or their need for explanations and theories of youth unemployment, although these are clearly relevant.

An unemployment rate for the whole labor force serves several functions in national and international life and is an emotionally charged statistic. The overall unemployment rate is used as a measure of the economic and social hardship of individuals. It also provides a gauge of the underutilization of human resources, of foregone output, and of the full employment gap. It offers a guide to cyclical and secular trends in the economy. It is regarded as an indicator of a society's stability and an economy's soundness. It is cited in comparative assessments of different social systems. It is used as a guide to the establishment of programs and the allocation of public funds amoung communities.

In the United States doubts have arisen that the overall unemployment rate or any single measure, such as unemployment, can serve all of these diverse purposes at once. There is even doubt that the unemployment rate adequately measures the extent of hardship or the job needs of individuals.[1] Moreover, widespread agreement prevails that a measure reporting the incidence, frequency, and duration of spells of unemployment would be superior to the cross-sectional unemployment rate, but it has not yet become an official U.S. statistic. Canadian studies

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1. Julius Shishkin, "Employment and Unemployment: the Doughnut or the Hole?" Monthly Labor Review, vol. 99, (February 1976), pp. 3-10; Willard Wirtz and Harold Goldstein, A Critical Look at the Measuring of Work (Washington: National Manpower Institute, 1975); Henry Wallich, "What is to be Done?" Challenge, (November/December 1977), p. 36; Carolyn Shaw Bell, "Basic Data and Economic Policy," Challenge, (November/December 1977), pp. 46-47; Curtis Gilroy, "Supplemental Measures of Labor Force Utilization," Monthly Labor Review, vol. 98 (May 1975), pp. 13-23; Julius Shishkin and Robert L. Stein, "Problems in Measuring Unemployment," Monthly Labor Review (August 1975), 3-10; Julius Shishkin, "A New Role for Economic Indicators," Monthly Labor Review, vol. 100 (November 1977), pp. 3-5.

studies have computed these components of unemployment by age groups. One of the tasks of the U.S. Commission on Employment and Unemployment will be to review measurement methods and to consider whether the concept of unemployment should be enriched by additional information about the employment/population ratio, gross and net flows into and out of unemployment, type of employment, earnings, hours of work (including involuntary and voluntary part-time), and family status.[2] Some of these issues have also been discussed in other countries and in the international organizations.[3]

Teenage unemployment rates serve more restricted purposes. They are used chiefly to indicate individual hardship, but the emphasis is somewhat different in the United States than it is in European countries. American analysts tend to accept a large part of teenage unemployment as a transitory experience and part of the maturation and adjustment process, offering varied explanations of the fact that American teenage

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2. John E. Bregger, "Establishment of a New Employment Statistics Review Commission," Monthly Labor Review, vol.100 (March 1977), pp. 14-20; "Jobless Rate: Elusive Statistic," New York Times, January 13, 1978; M. McIlveen and H. Sims, The Flow Components of Unemployment in Canada, paper presented at Regional Science Association meeting, May 30, 1977; F.T. Denton, C.H. Feaver and A.L. Robb, "The Short Run Dynamics of the Canadian Labor Market" (Ottawa: Economic Council of Canada, 1975).

3. Adrian Sinfield, "Improved Statistics on Unemployment: a First Step in Preventing Prolonged Joblessness and Poverty," OECD Observer, (December 1968), pp. 8-10; Maurice Peston, "Unemployment: Why We Need a New Measurement," Lloyds Bank Review, (April 1972), pp. 1-7; James J. Hughes, "How Should We Measure Unemployment?" British Journal of Industrial Relations, vol. 13 (July 1975), pp. 317-33; John B. Wood, How Much Unemployment? (London: The Institute of Economic Affairs, Research Monograph 28, April 1972); Jim Bourlet and Adrian Bell, Unemployment and Inflation: The Need For A Trustworthy Unemployment Indicator (London: Economic Research Council, October 1973); OECD, Entry of Young People into Working Life, General Report (Paris: OECD, 1977), pp. 59-69; International Labor Office, Measurement of Underemployment: Concepts and Methods (Geneva: I.L.O., 1966).

unemployment rates have greatly exceeded those of most European countries in most years of the postwar period.[4] The possibility should be faced that prolonged exposure to a difficult situation breeds tolerance and fosters attempts to establish it as normal. It also seems to lead to selective concern. Thus, at a conference on teenage unemployment conducted by the Congressional Budget Office at the end of 1976, several participants were said to believe "that the unemployment problem among white teenagers is relatively limited, but that there is a very serious problem with regard to the inner city, particularly minority teenagers."[5]

This view is fairly prevalent today among high policymakers in the executive branch and occasionally results in declarations that many teenage blacks do not find jobs until they reach their twenties. There is no hard evidence for this belief. But there are data suggesting frequent turnover in low-level jobs and intervening periods of unemployment for black youth. Youth unemployment data which record the incidence, duration and number of spells of unemployment in a year or over a longer time period are available and should be given equal attention with unemployment rates. It makes a major difference to policy planning whether a substantial group of minority or other youth remain unemployed for years at a time or whether the prevailing pattern is one of short-lived jobs with considerable turnover in the ranks of the unemployed.

Most European countries have enjoyed long periods when new entrants had a choice of many jobs and few young people experienced unemployment on changing jobs, even in the years when the baby-boom generation entered work in large numbers. Therefore, interruptions of that pattern are regarded as abnormal and unacceptable. Several Scandinavian countries have announced a public goal to provide each teenager with a job, training, or education, leaving none to be unemployed. When attention is given to disadvantaged groups among unemployed youth in European countries, it is almost always within a framework of policies that cater to the entire group. In contrast to our racial-ethnic divisions in the statistics, other countries tend to stress socio-economic status as the primary differentiator, considering ethnic variations as an additional dimension. It can be argued that we have lost something by our emphasis. In Europe unemployment is viewed primarily as affecting individuals, not, as in the United States, as a group phenomenon where a high proportion of black unemployed is more significant than a larger absolute number of whites, when identical criteria of hardship or need are used.

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[4] Beatrice G. Reubens, "Foreign and American Experience with the Youth Transition" in National Commission for Manpower Policy, From School to Work: Improving the Transition (Washington: Government Printing Office, 1976), pp. 274-79; U.S. Bureau of Labor Statistics, International Comparisons of Unemployment (Washington: Government Printing Office, 1978).

[5] Congressional Budget Office, The Teenage Unemployment Problem: What are the Options? (Washington: Government Printing Office, 1977), p. 69.

European countries believe that special efforts should be made to minimize the unemployment of all new entrants to the labor market and that young people should have unemployment rates close to the national average. There are three strands in the European attitude toward youth unemployment. First, a period of unemployment at the outset of one's working career is viewed as damaging to long-run attitudes, ambitions and behavior. Stronger positions are taken in Europe on the evils of entrance unemployment than in the U.S.[6] Secondly, in some countries the theme of individual hardship and alienation is strongly overlaid with political fears about the reactions of the radical segment of students who graduate from universities into unemployment.

There is relatively little talk in Europe about youth as secondary workers who live with their families and do not need the income. There is not much excuse-making for youth unemployment in Europe on the grounds that job-search time is valuable or that high rates of job-changing by youth inevitably produce periods of unemployment. However, as in the U.S., private and public employment policies tend to favor established workers, especially male heads of households.

Thirdly, the adverse reaction to youth unemployment in European countries also springs from a general belief that it weakens the economy. Viewing the new entrants as the source of renewal and advance for the economy and the labor force, European youth unemployment programs

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6. E.g., British Youth Council, Youth Unemployment: Causes and Cures, Report of a Working Party, London, March 1977, p.1.

have attempted to compensate for the recession deficits in private sector training of young people. It is of more than passing interest, although beyond the scope of this paper, that the United States is virtually the only advanced industrial nation without an organized national approach toward skill training of new entrants, apart from remedial programs. Our remedial training programs for unemployed young people are concerned with helping the unemployed to improve their own position and livelihood. Because there is relatively little pressure for training due to existing or anticipated skill shortages, American youth unemployment programs can cater heavily to the disadvantaged and attempt to instill skills that suit the capacities of the trainees. European programs assume that there will be a skill shortage and they try to match the trainees to those requirements.

With these differences in attitudes and policy initiatives as an introduction, the discussion can turn to the chief differences in the way countries measure teenage unemployment.

AGE LIMITS AND AGE GROUPS

The most common arrangement is to count young people as unemployed from the age when compulsory education ends and the law permits full-time work to begin. In most countries these are simultaneous dates, usually fifteen or sixteen, but in Italy the school-leaving age has been fourteen and the legal age to start work has been fifteen, leaving a difficult gap. Most American states provide that compulsory education ends and the legal working age begins at sixteen. A cut-off date at the lowest legal age both for leaving school and beginning work means that those under the legal age who are in the labor market are omitted from unemployment statistics. This causes a problem only in countries where observance of the law is lax, as in Italy, or where the laws vary in the subdivisions of a federal country, as in the U.S. or West Germany

Unlike the United States, almost all countries coordinate the end of compulsory education with the completion of a recognized phase of the educational sequence. When they raise the age of compulsory education, they reorganize the educational sequences so that credentials can be given to those who leave school at the compulsory age. The American arrangements make dropouts of those who leave school at the legal age of sixteen, since no recognition is given by society to the completion of junior high school. Other countries award socially acceptable credentials to those who complete a similar sequence. An ambiguous and unfavorable labor market situation confronts American out-of-school youth who are not high school graduates.

A related issue arises having to do with the difference between the legal school-leaving age and the actual age at which the majority of young people move from school to the full-time labor market. Countries divide into those like Great Britain, Austria, Switzerland, Australia, and Germany where most young people leave education at the earliest legal moment or soon thereafter, and others like Japan, France, the Scandinavian countries, Canada and the United States where a small minority of the age group leaves education at the legal age. Countries should present data on the youth labor force and on employment and unemployment using the appropriate divisions to suit their individual educational circumstances. Many countries do this but, because of the desire to standardize unemployment data, the international agencies have urged countries to produce two main youth unemployment rates--for teenagers and young adults. However, these rates can conceal important differences within the age group.

American analysis would benefit by making sharp distinctions in all youth labor market data between sixteen to seventeen and eighteen to nineteen among the teenagers, and between twenty to twenty-two and twenty-three to twenty-four among the young adults. Data grouping sixteen to nineteen year-olds should be avoided. Distinctions would reflect the fact that the sixteen to seventeen year-olds usually are not high school graduates and that the age group is overwhelmingly in school, in sharp contrast to the eighteen to nineteen-year group. (Tables 1 and 2). In the same way, a two-fold division among the young adults would capture most of those still in college.

In addition to using age breaks that relate to the actual situation of various teenage subdivisions, other countries pay much more attention than we do to studying separately the annual cohort of new entrants to the full-time labor market, dividing them according to the accepted national educational levels. Using the entire cohort as the universe, the

TABLE 2

PERSONS 18 AND 19 YEARS OF AGE: CIVILIAN NONINSTITUTIONAL POPULATION, PERCENT ENROLLED IN SCHOOL, LABOR FORCE PARTICIPATION, AND UNEMPLOYMENT, UNITED STATES, OCTOBER OF 1955-1975.

Year	Persons 18 and 19 Years of Age							
	Civilian Noninstitutional Population		Civilian Labor Force		Labor Force Participation Rate		Unemployed	
	Total Number (000)	Percent Enrolled in School	Total Number (000)	Percent Enrolled in School	Enrolled in School	Not Enrolled in School	Total Number (000)	Percent Enrolled in School
1955	3905	31.5	2455	18.9	37.7	74.4	175	25.1
1956	3978	35.4	2332	20.6	34.2	72.0	137	17.5
1957	4041	34.9	2406	19.4	33.1	73.7	193	15.5
1958	4158	37.6	2393	21.7	33.2	72.2	298	13.8
1959	4353	36.8	2496	21.1	32.9	71.6	321	13.1
1960	4733	38.4	2716	21.4	32.0	73.2	367	14.2
1961	5139	38.0	2905	21.2	31.6	71.8	398	14.6
1962	.5129	41.8	2821	22.2	29.2	73.5	340	18.5
1963	5043	40.9	2880	23.8	33.3	73.6	396	17.7
1964	5276	41.6	2922	23.5	31.3	72.6	384	16.7
1965	6329	46.3	3500	27.7	33.1	74.4	415	26.3
1966	6724	47.2	3714	30.6	35.8	72.6	374	26.5
1967	6359	47.6	3518	30.6	36.0	72.9	455	27.3
1968	6588	50.3	3633	34.8	38.1	72.4	392	31.4
1969	6679	50.2	3840	35.4	40.5	74.[illegible]	402	38.1
1970	6958	47.8	3982	33.0	39.6	73.4	600	32.2
1971	7231	49.2	4111	34.9	40.3	72.9	599	30.2
1972	7462	46.3	4490	32.0	41.5	76.3	595	30.8
1973	7648	42.9	4738	29.2	42.1	76.8	547	27.6
1974	7822	43.1	4919	28.9	42.1	78.7	741	24.0
1975	8024	46.9	4889	32.0	41.5	78.1	857	27.2
1976	8148	46.2	5130	32.6	44.4	78.9	854	27.6

Source: U.S. Dept. of Labor, Employment and Training Report of the President 1977 (Washington, D.C., U.S. Government Printing Office, 1977), Table B-6, pp. 196, 197, 198, Table B-7, p. 200. U.S. Dept. of Labor, Bureau of Labor Statistics, Students, Graduates and Dropouts in the Labor Market, October 1976, Special Labor Force Report 200.

TABLE 1

PERSONS 16 AND 17 YEARS OF AGE: CIVILIAN NONINSTITUTIONAL POPULATION, PERCENT ENROLLED IN SCHOOL, LABOR FORCE PARTICIPATION AND UNEMPLOYMENT, UNITED STATES, OCTOBER OF 1955-1975.

Year	Persons 16 and 17 Years of Age							
	Civilian Noninstitutional Population		Civilian Labor Force		Labor Force Participation Rate		Unemployed	
	Total Number (000)	Percent Enrolled in School	Total Number (000)	Percent Enrolled in School	Enrolled in School	Not Enrolled in School	Total Number (000)	Percent Enrolled in School
1955	4460	77.4	1677	61.2	29.7	64.5	155	38.1
1956	4500	78.4	1751	63.4	31.5	65.9	157	52.2
1957	4647	80.5	1735	68.0	31.5	61.2	164	49.4
1958	5001	80.6	1795	66.5	29.6	61.9	247	40.9
1959	5448	82.9	1859	69.6	28.7	60.6	243	50.2
1960	5573	82.6	1940	67.6	28.5	64.7	254	53.9
1961	5437	83.5	1760	68.0	26.3	63.0	266	55.6
1962	5622	84.3	1814	72.4	27.7	56.9	219	61.6
1963	6549	87.1	2138	77.1	28.9	58.0	329	60.2
1964	7050	87.7	2195	78.2	27.8	55.1	300	68.3
1965	6925	87.4	2451	78.1	31.6	61.5	308	66.9
1966	6922	88.5	2469	81.6	32.9	57.1	286	63.9
1967	7051	88.8	2610	83.0	34.6	56.3	373	74.7
1968	7266	90.2	2609	85.6	34.1	52.7	338	76.6
1969	7481	89.7	2953	84.7	37.3	58.8	435	78.6
1970	7699	90.0	2944	85.2	36.2	56.3	532	76.5
1971	7871	90.2	2983	85.4	35.8	56.8	562	78.8
1972	8065	88.9	3179	83.2	36.9	59.6	551	76.6
1973	8195	88.3	3571	83.4	41.2	61.8	573	79.1
1974	8298	87.9	3670	82.1	41.3	65.1	659	76.8
1975	8313	89.0	3529	84.6	40.3	59.5	744	73.3
1976	8303	89.1	3490	85.0	40.1	58.0	713	77.8

Source: U.S. Dept. of Labor, Employment and Training Report of the President 1977 (Washington, D.C., U.S. Government Printing Office, 1977), Table B-6, pp. 196, 197, 198, Table B-7, p. 200; U.S. Department of Labor, Bureau of Labor Statistics, Students, Graduates and Dropouts in the Labor Market, October 1976, Special Labor Force Report 200.

statistics present information on the length of time it takes each group to find first jobs and identifies the sizable number who experience no entrance unemployment because their jobs have been prearranged.[7] The concept of new entrants is recognized in the statistics of Great Britain, Japan, France, and Italy, among others. This treatment should be distinguished from the U.S. approach to entrance and reentrance unemployment. Our universe is the totality of the unemployed and entry and reentry are of interest as reasons for being unemployed. Moreover, the usual presentation of this information does not separate young people in the labor force who are still at school from others, a difficulty in our overall treatment of teenage unemployment which is discussed below.

It would improve American analysis of the teenage labor market and of unemployment specifically if both our cross-sectional data and longitudinal studies introduced the category of "new out-of-school entrants to the labor market" as a prime object for data collection and interpretation. We would use the following educational divisions: less than high school graduate, high school graduate, junior college graduate, less than four-year college and four-year college. The last category would be very small if the analysis is confined to teenagers. If it extends to all under twenty-five years of age, a further category could be added of "post college." Allowance might also be made for other types of training and education, such as a post-high school secretarial or technical course that precedes entrance to the full-time labor market.

IN SCHOOL AND IN THE LABOR FORCE

Probably the most confusing information about the total amount of teenage unemployment in the United States, compared with other countries, arises from statistics that do not distinguish between teenagers, expecially the sixteen to seventeen year-olds, who are still in school and seek part-time jobs during the school year, and those who are out of school. Whatever merit there is in counting students as unemployed if they fail to obtain jobs over the long summer vacation, there is a serious question whether their school-time unemployment should receive the same weight as is given to young unemployed people in the full-time labor market. Our practice distorts the actual size and nature of our teenage unemployment problem, leading to an overstatement of labor market entrances and exits and often to confused policy initiatives. It also exaggerates our problem in comparison with that of other countries where a lower proportion of the age group is in school in most cases, fewer of those who are in school seek work during the school year or in short vacations, and those who are in school and seek part-time jobs unsuccessfully often do not appear in the unemployment statistics.

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[7] Beatrice G. Reubens, Bridges to Work: International Comparisons of Transition Services (Montclair, N.J.: Allenheld, Osmun & Co., 1977), pp. 163-68.

A consideration of the U.S. in- and out-of-school teenage labor force, divided into the sixteen to seventeen and eighteen to nineteen year-olds, is in order. As Table 1 indicates for October, a time of full school schedules, as far back as 1955 over three-fourths of the sixteen to seventeen year population was enrolled in school. Over the years, the increased size of the sixteen to seventeen year population was matched by rising proportion enrolled in school, settling in at around 89-90% since 1968. Growing slightly faster than population, the total civilian labor force of sixteen to seventeen-year olds as far back as 1955 consisted largely of those enrolled in school and since 1967 that proportion has risen almost without interruption from around 60% to 83-85%. The labor force participation rates of the enrolled have risen from around 30% to over 40% while the nonenrolled minority has shown a small decline which is particularly conspicuous among the males. Enrolled females have moved up from a 21.4% participation rate in 1955 to 38-39% in recent years, while nonenrolled have shown no distinct trend.

The total number of unemployed sixteen to seventeen year-olds has risen over the years at a more rapid rate than their total labor force or population. The division of the unemployment between the enrolled and nonenrolled has altered in the direction of increasing the share of the enrolled from 38.1% in 1955 to 77.8% in 1976, but the enrolled share of unemployment has been consistently lower than their share of the sixteen to seventeen year-old labor force. The trend for males and females is much the same, but enrolled females have had a point or two larger share of the total unemployment than enrolled males. Viewed in terms of unemployment rates, both the enrolled and the nonenrolled have had marked increases. Enrolled male unemployment rates have risen from 6.2% in 1955 to a historical high of 19.6% in 1976, while nonenrolled males increased from 18.4% in 1955 to the all-time high of 35.7% in 1976. For enrolled females, the advance from 4.8% in 1955 to 19.2% in 1976 and for nonenrolled females the climb was from 8.5% in 1955 to 37.6% in 1975, again historical high points. These data also show the persistent disadvantage of out-of-school youth.[8]

Turning to the eighteen to nineteen year-olds, one finds, as might be expected, that their total population is much more firmly out of school than the sixteen to seventeen year-olds (Table 2). Although a general trend toward a rising proportion of the age group in school can be observed from 1955 through 1976, the peak of just over 50% was reached in 1968 and 1969, largely due to male enrollments because of Vietnam draft threats. Thereafter the in-school proportion dropped through 1973 and then rose somewhat to around 46-47% in 1975 and 1976. Male school enrollment rates run considerably higher than female in this age group, unlike the younger cohort where they are very nearly the same. Among the eighteen to nineteen year-old males, the 1955 rate was 42.5% while the female rate was 22.5%, but by 1975 the female rate of 44.2% was only 5% behind the male 1975 enrollment rate.

The eighteen to nineteen year-old labor force is a higher proportion of the total age group and more heavily out-of-school than is the sixteen to seventeen year labor force. Although the trend has been for an increasing share of the eighteen to nineteen labor force to be in-school, the highest percentage reached was only 35.4% in 1969 and it was as low as 18.9% in 1955. Labor force participation rates for the eighteen to nineteen age group show that out-of-school youth were almost twice as likely to be in the labor force as those in-school. The upward trend in participation rates for the enrolled was somewhat more marked than for the nonenrolled, but neither showed the striking rise that the sixteen to seventeen enrolled did. In contrast to the level or declining trends among eighteen to nineteen year-old males, females of the same age, in and out of school, have exhibited the same soaring participation rates as have older age cohorts of women in recent years.

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[8] Employment and Training Report of the President (Washington: Government Printing Office, 1977), Table B-7; U.S. Bureau of Labor Statistics, Students, Graduates and Dropouts in the Labor Market, October 1970, Special Labor Force Report 200, Table A; U.S. Bureau of Labor Statistics, Work Experience of the Population in 1976, Special Labor Force Report 201, Table B13.

Like the sixteen to seventeen year-olds, the enrolled eighteen year-olds had a smaller share of the unemployment of their age group than of the labor force in almost all years. From one-fourth to 30% of unemployment was accounted for by the enrolled from 1965 on. For enrolled males there were seven years when their share of unemployment exceeded their share of the labor force. The eighteen to nineteen unemployment rates for enrolled and nonenrolled are much closer to one another than are the rates for the sixteen to seventeen year-olds.

It is clear that the eighteen to nineteen year-old group differs substantially from the sixteen to seventeen in the importance of school as the major activity. To treat the age groups together or to ignore enrollment status, especially in computing employment/population ratios and similar indicators, is to miss important variations which are as marked for black as for white youth. All of the foregoing calculations are based on the Current Population Survey and its special questions in the October interview which, according to BLS officials, provide a more reliable guide to enrollment status than data for other months. The paper at this conference by Borus, Mott and Nestel compares NLS data with CPS data for other months than October and uses different breakdowns of the data. Their conclusions therefore may not be fully applicable to the data presented here. It would be useful if NLS data could be compared with CPS October data along the age and enrollment breaks used in this paper.

There are relatively few studies in other countries of students in the labor force during the school years and even less on their unemployment as distinguished from that of other young people. Most information does not separate teenagers from young adults. An OECD study of part-time employment noted that in European countries students seeking part-time jobs during the school year were the exception rather than the rule. Noting the prevalence of this kind of work among American students, the study observed that students elsewhere took up casual jobs since part-time work was generally not adapted to their requirements.[9] Canada probably comes closest to the United States in the proportion of students who seek jobs during the school year. In its revised labor force survey which has produced monthly data for 1975 onward, Canada now has a more accurate and comparable record of the labor force and unemployment rates of students. However, Canadian teenagers cannot be separated out from the age group fifteen years and over. As Table 3 shows for October 1976 when schools were in session, American students are more prone to be in the labor force than Canadian and also have a higher unemployment rate. Information also is available from the same sources as Table 3 on the proportions of students who were employed full-time and part-time in October 1976:

Employed Students

	Males		Females	
	Full-time	Part-time	Full-time	Part-time
	Percent			
Canada	49.0	51.0	38.0	62.0
U.S.	41.0	59.0	29.2	70.8

Canadian students seem slightly more likely to work full-time than American, but differences in the age and educational composition of the groups in the two countries may be chiefly responsible. Canadian analysts of the flow components of unemployment found that out-of-school teenagers on average became unemployed more frequently and had a longer duration of unemployment, but had about the same number of spells of idleness as the total teenage labor force. For the twenty to twenty-four year group, enrollment status had little effect on the components of unemployment.[10]

Some information is available for Japan from the triennial Employment Status Survey which regularly presents information on those who are at work but whose main activity is school. Only about 50,000 to 60,000

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[9] Jean Hallaire, *Part-time Employment: Its Extent and Its Problems* (Paris: OECD, 1968), p. 34.

[10] McIlveen and Sims, *op. cit.*

TABLE 3

STUDENTS IN THE LABOR FORCE, CANADA AND THE UNITED STATES OCTOBER, 1976

	Total Student Population	Students In Labor Force	Labor Force Participation Rate of Students	Unemployment Rate of Students
	(000)		Percent	
Canada (15 years & over)	2,335	892	38.2	6.5
United States (16-34)	18,130	9,033	49.8	12.2

Source: Statistics Canada, Labour Force Survey Division, Labour Force Activities and Characteristics of Students, Research Paper no. 14, Ottawa, July 1977, Table 1; U.S. Bureau of Labor statistics, Students, Graduates and Dropouts in the Labor Market, October 1976, Special Labor Force Report 200, Washington, 1977, Table A.

are in this category, constituting less than 1% of employed persons aged fifteen to twenty-four.[11] Some of the reasons why few students in other countries seek jobs when classes are in session are suggestive for American education and employment policy. The burden of studies is so heavy, even in upper secondary school, that relatively few young people have much time for paid employment. In countries where government grants or loans are paid to students, with or without a family income means test, paid work may be forbidden during the school period. With rising costs of living due to inflation and the failure of grants and loans to keep pace, more students are finding it necessary to supplement their other sources of income. But the pressure to work is reduced by the government study allowances as well as the policy of continuing childrens' allowances and offering tax deductions to families in which young people remain in school beyond the compulsory stage. Work is more common during the summers and over long vacations and some countries capture this unemployment.

Some countries say that they monitor student unemployment during the school year in their labor force surveys, but they publish no separate information on the category and it is likely that many students are not counted.[12] Survey questions must be worded very carefully in order to capture the full school component. Until Canada introduced its new survey questions, it had been undercounting students in the labor force. A different situation obtains in countries that rely entirely or largely on registrations at the employment service offices for their unemployment statistics. Students are not accepted as registrants because they are not available for full-time work; in many cases the offices do not register those wishing only part-time work. However, a number of students may get into the unemployment count if they are required to register in order to qualify for benefits other than unemployment insurance. In Great Britain this situation developed in relation to claims for supplementary benefit, a kind of welfare payment, which students applied for over short vacation periods when they did not find jobs. At the beginning of 1976 over 120,000 students above the age of eighteen were registered as unemployed and the authorities decided that they confused and distorted the statistics and would henceforth be excluded from the unemployment count because they were not available for permanent jobs. The regulations in regard to study grants also were changed, covering vacation periods so that applications for supplementary benefit during the school year would not be made, although those unemployed during the summers could apply.[13]

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[11] Japan, Office of the Prime Minister, Bureau of Statistics, *Employment Status Survey*, Tokyo, triennial; U.S. Bureau of Labor Statistics, *Students in the Labor Force: An International Comparison for Major Countries*, unpublished, p. 3.

[12] U.S. Bureau of Labor Statistics, *International Comparisons of Unemployment*, *loc. cit.*, pp. 13-17, 21-22; U.S. Bureau of Labor Statistics, *Students in the Labor Force: An International Comparison for Major Countries*; Reubens, "Foreign and American Experience with the *Youth Transition*," *loc. cit.*, pp. 277-80.

Some countries have auxiliary categories of unemployed which can include those who would like to work but whose requirements as to hours, place and type of work may not be consonant with existing job vacancies. This is not quite the same as our "discouraged unemployed." The Swedish concept of "latent unemployment" can include students who say they would work while studying, if all conditions met their requirements. But they have not necessarily been searching for work and are not discouraged unemployed. In French labor force surveys there is a marginal category of jobseekers which can include students during the school year.

Our knowledge about the interrelationships between attending school and working at the same time is quite incomplete and requires further study among American teenagers.[14] Two surveys conducted by educational researchers have somewhat different findings than those of labor market researchers, including papers presented at this conference. The educational researchers find lower proportions at work than do the CPS or NLS surveys and those with jobs seem to work fewer hours, according to the educational surveys. The latter also indicate that work is undertaken for the earnings and with little thought to the type of job or its relation to future careers. Some studies find little benefit from working during the school years, either in regard to work attitudes and knowlege or the jobs later obtained. Analysis of attrition from college

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13. House of Commons, Hansard, February 23, 1976.

14. Beatrice G. Reubens, Preparation for Work: A Cross-Country Analysis (Montclair, N.J.: Allenheld & Osmun, forthcoming).

after the first year shows that those in full-time employment were twice as prone to withdraw from education as those working part-time or not at all. The effect on college grades of working more than fifteen hours a week has been found to be adverse. In a survey of high school students, those working over fifteen hours a week had below average grades and doubts about finishing high school. The most common positive finding has been that those who have worked while at school find their first out-of-school job more quickly than others.

The following conclusions may be drawn from a consideration of the American teenage unemployed who are enrolled in school and seek jobs during the school year:[15]

(1) All unemployment data should clearly separate in-school from out-of-school unemployed, preferably by narrower age bands than are now commonly used.

(2) If the in-school unemployed are to be included in an overall

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[15] Anita M. Mitchell, *Career Development Needs of Seventeen Year Olds: How to Improve Career Development Programs* (Washington: National Advisory Council for Career Education, September 1977), Table 9; Measurement and Research Center, Purdue University, *Vocational Plans and Preferences of Adolescents*, Report of Poll No. 94 of the Purdue Opinion Panel (Lafayette, Ind., May 1972), p. 3a; Measurement and Research Center, Purdue University, *Sources of Information for Career Decisions*, Report of Poll No. 98 of the Purdue Opinion Panel (Lafayette, Ind. June 1973), pp. 11a, 15a; National Center for Education Statistics; National Longitudinal Study of the High School Class of 1972, *Attrition from College: The Class of 1972 Two and One-Half Years After High School Graduation* (Washington: U.S. Department of Health, Education and Welfare, 1977), p. 6; Stephen J. Carroll, *Part-time Experience and the Transition from School to Work* (Santa Monica: Rand Corporation, 1970); J.E. Hay, Keith Evans, and C.A. Lindsay, "Student Part-Time Jobs: Relevant or Non-relevant," *Vocational Guidance Quarterly*, (December 1973); Jerome Johnston and Jerald Bachman, *The Transition from High School to Work: The Work Attitudes and Early Occupational Experiences of Young Men* (Ann Arbor, University of Michigan Institute for Social Research, 1973), pp. 81-85; U.S. Bureau of Labor Statistics, *Out of School Youth*, February 1963, Part II, Special Labor Force Report No. 47 (Washington, 1965), pp. 1418-19; A.P. Garbin, J.J. Salomone, D.P. Jackson, J.A. Ballweg, *Worker Adjustment: Problems of Youth in Transition from High School to Work* (Columbus: Ohio State University, Center for Vocational and Technical Education, 1970), pp. 47-50; F.A. Zeller, J.R. Shea, A.I. Kohen, J.A. Meyer, *Career Thresholds* (Columbus: Ohio State University Center for Human Resource Research, Oct. 1970), vol. 2, p. 79.

unemployment rate, the total numbers should be reduced to full-time equivalents.

(3) A special survey should be undertaken through an October CPS which asks detailed questions about the number of hours worked in the reference week, the precise type of job held, the actual earnings, the family income, the amount and methods of job search, the uses of earnings, and the relation between working and academic performance and ambitions. The scattered information available on these subjects suggests that this group might be better served by related education, training and income programs, freeing them from the need to work and transferring some of their jobs to older teenagers.

(4) Because of deficiencies in basic and occupational skills and low educational attainment, almost all of the sixteen to seventeen year-old, out-of-school population presents a series of labor market, social, educational and personal problems, not just an unemployment problem. Numbering over 800,000 and with more than half a million in the labor force, disproportionately black but mostly white, they require a total approach, just as older members of the labor force who entered at sixteen to seventeen or younger are the most likely candidates for remedial programs.

NOT IN SCHOOL AND NOT IN THE LABOR FORCE

Teenagers who are not enrolled in full-time school and are not employed or unemployed have long been a concern in the United States. Data on this group, presented in Table 4, must be treated carefully. On the one hand, there is no allowance for young people whose legitimate activities, such as keeping house, illness, or attendance at various kinds of training courses, account for their failure to appear in one of the two major categories. Moreover, some overstatement of the total results from inclusion of the summer months during which those on vacation from school and not working are recorded as neither in school nor in the labor force. On the other hand, surveys such as the Current Population Survey may undercount the young people who are neither in school nor in the labor force. Low income youth, especially minority youth in central cities, are particularly likely to be missed. Among them are some who

TABLE 4

TEENAGERS NOT IN SCHOOL AND NOT IN THE LABOR FORCE AS A PERCENTAGE OF THEIR CIVILIAN NONINSTUTIONAL POPULATION, UNITED STATES, 1962-1976.

Sex	Males				Females			
Age	16-17		18-19		16-17		18-19	
Race	White	Nonwhite	White	Nonwhite	White	Nonwhite	White	Nonwhite
	Percent							
Year								
1962	10.0	12.1	5.8	6.5	20.4	26.8	25.0	35.2
1963	10.1	11.6	5.4	7.0	19.2	25.4	25.8	34.0
1964	10.1	12.1	5.8	7.9	18.8	23.5	25.7	33.7
1965	9.0	10.7	5.2	7.1	18.1	21.4	23.8	33.5
1966	9.0	9.9	5.3	7.3	17.3	21.2	22.3	29.7
1967	8.1	8.9	5.3	7.6	16.9	22.0	21.0	26.8
1968	8.3	11.0	6.0	8.9	16.4	20.2	20.7	29.1
1969	8.5	9.7	5.7	9.6	16.6	19.2	19.8	29.6
1970	8.7	12.4	6.5	11.2	16.1	18.6	21.1	28.8
1971	7.9	12.3	6.5	10.4	15.7	19.1	20.2	28.3
1972	9.1	9.8	6.0	9.8	15.4	18.6	19.9	27.9
1973	8.2	12.3	5.8	10.3	15.8	19.3	19.9	28.2
1974	8.8	12.2	6.0	10.2	15.0	18.8	19.5	29.6
1975	8.6	13.4	5.7	11.1	14.9	19.9	18.7	26.9
1976	8.8	12.8	6.0	13.0	14.5	18.0	17.6	26.1

Source: Annual averages, tabulated from Current Population Survey data by the U.S. Bureau of Labor Statistics.

participate in the "subterranean" economy or engage in illicit activities. If they are counted as unemployed, that figure may be inflated. Yet it is equally misleading to view them as having no occupation or income.

Table 4 shows that females in both age groups and of all races have had a marked decline in the proportion of the age group that is recorded as not in school or in the labor force. Furthermore, the spread between the age groups and races has narrowed over time. These trends are part of the phenomenal rise in female labor force participation rates. Males reveal little trend, except that eighteen to nineteen year-old nonwhites have had a distinct rise over the period 1962-1976. Certain stabilities are apparent. Nonwhites show higher percentages than whites and female proportions exceed male, as might be expected because of the sex division of housekeeping and childrearing functions. Among males the older age group has generally had the lower percentages, but for females it has been the reverse.

In other countries this category of teenagers has aroused less attention, although France and Italy have referred to such young people as problem groups. Census data in most countries produces a statistical category that appears to be neither in the labor force nor in school, but it seems a smaller proportion in most countries than the American percentage. An experimental program in Sweden to contact all such teenagers through joint operations by the employment service, schools, and social agencies revealed that the numbers were not as large as had been feared and that most young people were responsive to the outreach efforts.[16] The issue may be not so much to count this category as to decide what can be done for them and who should do it.

SOURCES OF INFORMATION ON TEENAGE UNEMPLOYMENT

Countries obtain their basic unemployment statistics either from a labor force survey at intervals, ranging from monthly to annually, or from the monthly registration of the unemployed in connection with filing for financial benefits, establishing eligibility for programs, or seeking assistance in finding jobs. However good the cross-sectional unemployment data of a country are from a labor force survey or registration statistics, it is desirable to supplement these with longitudinal studies and analyses of flows into and out of unemployment. The labor force survey generally is considered superior to registration data in generating comprehensive unemployment data for the whole labor force. Seeking greater uniformity in the methods of individual countries, the international agencies have sponsored the labor force survey as a supplement to or replacement for registration statistics. But at present only a few countries conduct a monthly labor force survey and use it exclusively to obtain official unemployment data. Sweden has the best of both worlds, having a monthly labor force survey and monthly registration statistics of good quality and wide coverage.

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[16] Sweden, National Labour Market Board, Vocational Guidance Division, Unemployment among Young People in Sweden--Measures and Experience (Stockholm, 1977), App. 5.

Whatever merit the labor force survey may have for overall unemployment data and international comparisons, a persuasive case can be made that, under favorable circumstances, countries using registration statistics can gain a good understanding of month to month changes in teenage unemployment and can recommend and carry out programs at the local level. They often can do this better than countries that rely on frequent, comprehensive labor force surveys. The United States, however, is not in this position, nor is it likely to be in the near future.

To give satisfactory service, registration statistics must contain a reasonable proportion of the teenage unemployed, especially of the new entrants who have never worked before.[17] Financial incentives make this group register in a number of countries. In northern European countries where the employment service is strong and there is a separate youth division or special officers, or, as in Great Britain, which has a specialized Careers Service for young people below the university level, there is an intimate, grass roots acquaintance with the local dimensions of youth unemployment and employment that compensates for some underregistration.

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[17] The Unregistered Unemployed in Great Britain," Department of Employment Gazette, December 1976, pp. 1331-36; Guy Standing, "The Distribution of Concealed Unemployment in Great Britain," British Journal of Industrial Relations, vol. 10 (July 1972), pp. 291-99; Christian Brinkmann and Karen Schober-Gottwald, "On the Occupational Reintegration of the Unemployed during the 1974/75 Recession," Mitteilungen aud der Arbeitsmarkt--und Berufsforschung, no. 2, 1976, pp. 95-97.

These local offices also have a good notion about the young people who are registered as unemployed for various reasons but are not sincerely seeking work. They are able to mount special outreach programs or concentrate activities on particular groups, based on the close observation of the flow through their offices. Close contact even emboldens some of them to declare, as a Swedish report does, that substantial proportions of unemployed young people suffer from such work disabilities as alcohol or drug addiction, criminal records or detention histories, and other social problems which are particularly prominent in metropolitan areas. Facing the actual circumstances of the registrants, the agencies place as much emphasis on changing the characteristics of these young people as on finding jobs for them.[18] The society is not held entirely to blame, as tends to be the case when American national data are interpreted and programs are established for youth. Sympathy for unwilling employers and an expectation that the young people will be rehabilitated or reformed is far more common when programs arise from the direct experience of employment service personnel with youth.

Registration statistics seem to serve some countries quite well as a barometer of changes in unemployment to which policymakers should pay attention. Changes in the numbers of registrants, the duration of their unemployment and the composition of the registrants are observed by local officials. If the employment service is so organized that it has the chief responsibility for youth unemployment programs, its proximity to the data collection is an advantage. As a result, Britain has decided not to conduct a frequent household survey.

In contrast to other countries, the United States has lacked adequate geographic unemployment data. These are now urgently needed because program allocations hinge on local unemployment rates.[19] We do not produce the equivalent of the cumulation of local office youth unemployment statistics into district and regional totals that is achieved by the Careers Service in each British Local Education Authority, the Swedish County Labor Boards, the German Arbeitsamt or the Japanese PESO.

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[18] Sweden, National Labour Market Board, op. cit.

But more important than the collection of statistics from the ground up is the ability of the same agencies to participate in the construction of programs and their execution. Even with the best will in the world and adequate resources, policymakers will face difficult decisions about the time perspective of their policies, the division of programs and funds between general unemployment programs and special programs for teenagers, the amount of attention and program dollars to concentrate on disadvantaged teenagers out of the total allocated to teenagers, and the part of teenage unemployment that should be left untouched by public policy. The answers must come out of the experience and values of each country, based on adequate information. But we should always be aware that good information is a necessary condition of good policymaking, although it definitely is not a sufficient condition.

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[19] Janet L. Norwood, "Reshaping a Statistical Program to Meet Legislative Priorities," Monthly Labor Review, vol. 100 (November 1977), pp. 6-11; Martin Ziegler, "Efforts to Improve Estimates of State and Local Unemployment," Monthly Labor Review, vol. 100 (November 1977), pp. 12-18.

WHAT DO TEENAGE UNEMPLOYMENT STATISTICS MEASURE?

By: Orley Ashenfelter

ABSTRACT

In the theory of labor markets, employment and labor supply are the unambiguous concepts that provide the focus for analysis and unemployment is merely the difference between them. In our labor force statistics, on the other hand, employment and unemployment are the focus for measurement and labor supply is merely the sum of them. As a result of this measurement scheme the question of whether measured unemployment is really a genuine part of the offer to sell labor is never raised because the set-up of the statistics has implicitly answered it. Meanwhile, the measured extent of teenage unemployment has continued to increase throughout the postwar period and this has led to a flurry of research activity geared to find an explanation for this phenomenon. At the same time there have begun to be doubts about what the teenage unemployment statistics actually measure and serious questions about whether they measure a phenomenon comparable to that for adult workers.

In this paper I set out a simple consistency check on the extent to which measured teenage unemployment behaves as if it were part of the offer to sell labor. I also apply this consistency test to the unemployment data for adult workers where it passes with flying colors. As it turns out, the measured unemployment data for some teenage groups does not seem to pass the same test. This necessarily raises some difficult questions about the actual economic content of these statistics and suggests an important agenda for future research.

The basic idea behind these consistency tests is that if labor supply were a known quantity and if unemployment were measured without error there would be a one-to-one negative relationship between employment and unemployment for any particular group. Of course, the labor supply of any group is unobservable, but if two groups offered the same quantity of labor to the market then there would still be an observable one-to-one negative relationship between the differences in employment and unemployment for the two groups. I implement this scheme empirically for male and female fourteen to fifteen, sixteen to seventeen, eighteen to nineteen, twenty to twenty-four and thirty-five to forty-four year-olds by assuming that the unobserved labor supply of blacks and whites is identical apart from a constant and steady trend. Although there are a number of econometric difficulties associated with this procedure, the results suggest that for males eighteen and over and for females twenty and over there is a clear negative relationship between employment and unemployment differences, but that for younger groups there is not. This suggests that considerable research and experimentation with the measurement of teenage unemployment should be undertaken before these statistics are taken at face value.

INTRODUCTION

In the theory of labor markets employment and labor supply are the unambiguous concepts that provide the focus for analysis and unemployment is merely the difference between them. In our labor force statistics, on the other hand, employment and unemployment are the focus for measurement and labor supply is merely the sum of them. As a result of this measurement scheme the question of whether measured unemployment is really a genuine part of the offer to sell labor is never raised because the set-up of the statistics has implicity answered it. Meanwhile, the measured extent of teenage unemployment has continued to increase throughout the postwar period and this has led to a flurry of research activity geared to find an explanation for this phenomenon. At the same time there have begun to be doubts about what the teenage unemployment statistics actually measure and serious questions about whether they measure a phenomenon comparable to that for adult workers.

In this paper I set out a simple consistency check on the extent to which measured teenage unemployment behaves as if it were a part of the offer to sell labor.* I also apply this consistency test to the unemployment data for adult workers where it passes with flying colors. As it turns out, the measured unemployment data for some teenage groups does not seem to pass the same test. This necessarily raises some difficult questions about the actual economic content of these statistics and suggests an important agenda for future research.

It is obviously important to get this issue clarified because quite a lot will be at stake in this area in future years. First, several new programs designed to affect the labor market status of teenagers are being developed and if these are to be evaluated in terms of their impact on teenage unemployment statistics we must know just what to expect. Second, the continuing process of analyzing the usefulness of the overall unemployment rate as an economic and social indicator necessarily requires the integration of discussions of the usefulness of the teenage unemployment statistics. Finally, decisions about the size and allocation of resources devoted to labor market programs for youth must inevitably be guided to some extent by the state of the labor market for young people and it is important to know whether the current unemployment measurement device for these groups is sufficient for this task.

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*Following the usual dictum that a graduate student who writes your paper receives no acknowledgement, while a graduate student who does most of the work on it receives a footnote reference, I am tempted to ignore the substantial assistance I have received from David Bloom in the preparation of this paper.

The plan of the paper is as follows: The first section sets out some well known facts about the change in the employment of both black and white teenagers over the last twenty years. The second section contains the conceptual discussion of a simple test for the consistency of the observed movements in employment and unemployment of teenagers, while the third and fourth sections report on some initial empirical tests and modifications of these tests to cope with various econometric problems. Concluding remarks and issues for further research are contained in a final section.

SOME FACTS

Most of the basic facts about teenage employment are contained in Figure 1. As a benchmark, it may be seen that apart from a small drift upward, adult employment has remained at around 60% of adult population throughout most of the last two decades. Though more erratic and at a lower level, the employment/population ratio of white male teenagers (fourteen-to nineteen-years old) has followed a similar pattern. Employment/population ratios for white females, on the other hand, have drifted continuously upward in a qualitative pattern much the same as that for white female adults. For black youngsters, however, both the employment/population ratios of males and females have been trending steeply down for the last two decades. It is this latter, largely unexplained phenomenon, that has suggested a cause for alarm.

FIGURE 1

EMPLOYMENT/POPULATION RATIOS FOR ADULTS AND SELECTED CATEGORIES OF TEENAGERS, ANNUAL AVERAGES, 1954-1977

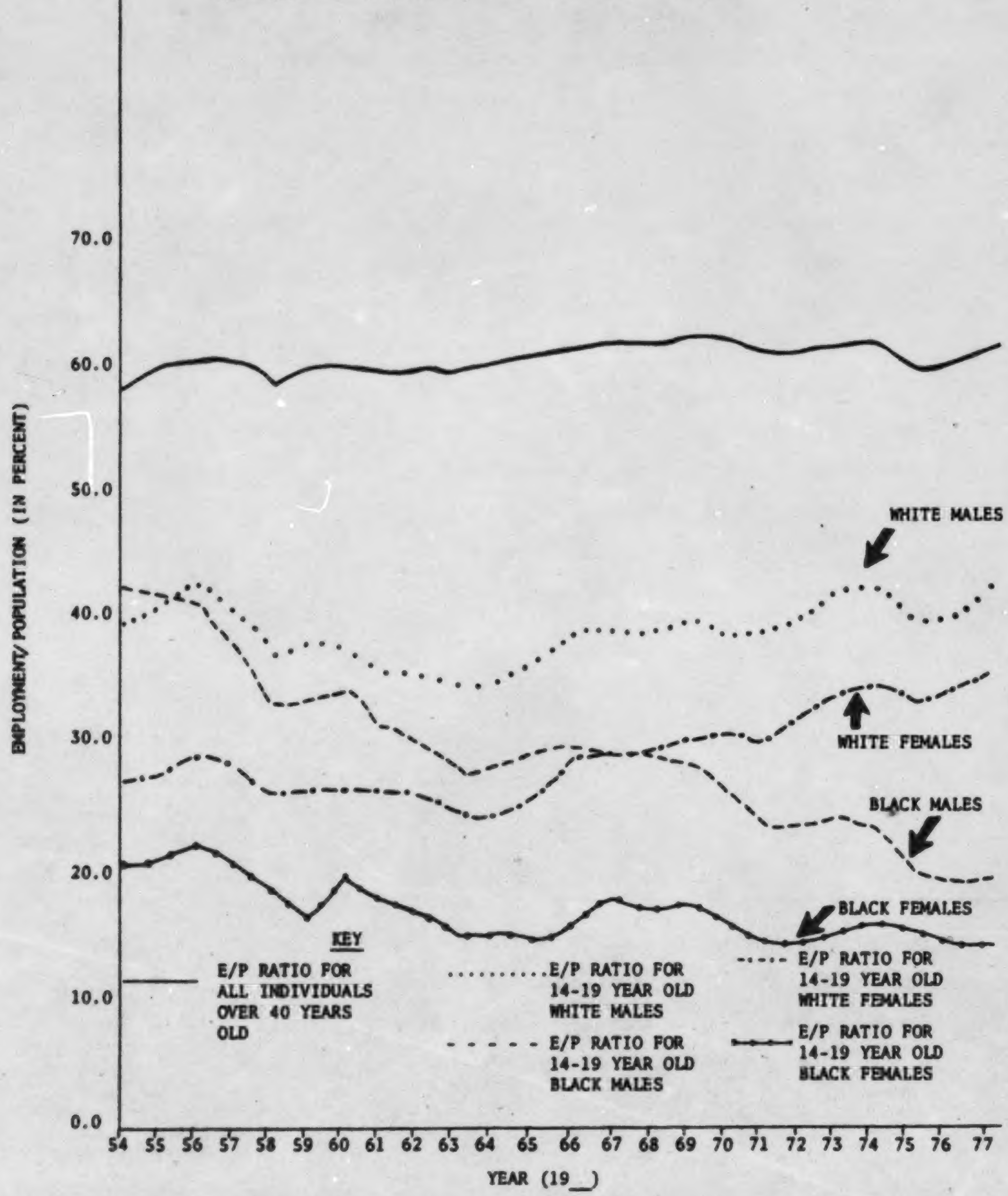

Table 1 contains a more systematic elaboration of these patterns. The coefficients in this table give the annual average trend in the employment/population ratio of the indicated group while holding constant the employment/population ratio of all adults aged thirty-five to forty-four. Thus, these coefficients may be thought of as the trends in teenage employment/population ratios relative to those of adults in their prime working years. This table indicates the same basic facts as Figure 1 and establishes an additional one. First, there has been no discernible trend in the relative employment/population ratios of whites aged fourteen through seventeen in the last two decades, although there has been some secular decline for white male eighteen- and nineteen-year-olds. Second, there has been a substantial decline in the relative employment/population ratio of all black teenagers and this decline has been especially sharp for black males. Finally, Table 1 also indicates that the decline of the relative employment/population ratio for black males extends to the twenty- to twenty-four-year-old group as well.

In the face of the massive decline in the employment/population ratio of black teenagers it would hardly be surprising to find that the unemployment of this group had increased considerably relative to its population size. Indeed, this has been precisely what has happened as black teenage unemployment/population rates have increased from three to ten percentage points depending on the specific age-sex group. What is more puzzling, however, is that white teenage unemployment has also increased significantly relative to its population size. It is this last phenomenon that leads to the question of just what economic interpretation it is sensible to give to the measured teenage unemployment statistics. After all, is it not surprising that the increasing employment of white teenagers is associated with simultaneously increasing unemployment for this group while just the reverse is the case for black teenagers?

A natural initial response is that simultaneously increasing employment/population and unemployment/population ratios for white teenagers indicates that their labor supply has increased secularly as well.

TABLE 1

AVERAGE ANNUAL CHANGES IN THE EMPLOYMENT/POPULATION RATIO OF TEENAGERS RELATIVE TO ALL 35-44 YEAR-OLD ADULTS, 1954-1977

Age Group	Black Males	White Males	Black Females	White Females
14-15 Year-Olds	-.0100 (.0030)	-.0031 (.0023)	-.0048 (.0030)	.0023 (.0016)
16-17 Year-Olds	-.0170 (.0044)	-.0046 (.0031)	-.0051 (.0037)	-.0005 (.0024)
18-19 Year-Olds	-.0196 (.0056)	-.0077 (.0025)	-.0052 (.0065)	-.0012 (.0028)
20-24 Year-Olds	-.0168 (.0052)	-.0081 (.0026)	-.0042 (.0046)	.0058 (.0021)

Source: Regressions of the first-differences of the annual average employment/population ratio of the indicated group on the similar first-differences of the employment/population ratio of 35-44 year-old adults. The coefficients in the table are the constant term estimates (and estimated standard errors) from these regressions. The data are based on the Current Population Survey estimates and are taken from various issues of the Monthly Labor Review.

This merely restates the known facts, however, because the conventional statistics define the labor supply as the sum of employment and unemployment. The question therefore naturally arises as to whether the actual increase in measured teenage unemployment is a genuine part of the true but generally unobserved labor supply.

A CONSISTENCY TEST

In the absence of forced work, the labor supply necessarily includes all employed workers and may also include other workers that are not employed. In stylized Keynesian models of the labor market, unemployment represents hours that workers are unable to sell on the market at the current (or prevailing) wage rate for one reason or another.[1] This disequilibrium component of the labor supply is presumably related at least loosely to measured unemployment statistics. In order to investigate this relationship in concrete terms suppose that for the $i^{\underline{th}}$ group of workers true unemployment U* is related to measured unemployment U as

$$(1) \quad U^*_{it} = \alpha_i U_{it} + \beta_i + v_{it},$$

where α_i and β_i are parameters and v_{it} is an error of measurement with mean of zero. The true labor supply is $L_{it} = E_{it} + U^*_{it}$ so that from (1) it follows that

$$(2) \quad E_{it} + \alpha_i U_{it} + \beta_i + v_{it} = L_{it}.$$

The implicit assumption in the conventional labor force statistics is that $\beta_i = 0$ and $\alpha_i = 1.0$ for all groups and the variance of v results only from sampling errors. In principle it should be possible to test one or more of these assumptions.

It is worth observing that α_i need not be smaller than unity because the true labor supply may be larger than the mere sum of measured employment and unemployment. In this case the quantity $\beta_i + (\alpha_i - 1) v_i$

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[1] For a rather more formal discussion see Orley Ashenfelter, "Unemployment as Disequilibrium in a Model of Aggregate Labor Supply," Working Paper No. 104, Industrial Relations Section, Princeton University, Princeton, N.J., November 1977.

would measure discouraged workers who did not report themselves as unemployed for one reason or another. It is also worth observing that the case $\alpha = 0$ does not imply there is no "true" unemployment because β may be very large. The case $\alpha = 0$ does imply, however, that movements in measured unemployment are poor estimates of movements in true unemployment.

Equation (2) suggests that the parameters α_i and β_i might be estimatable by regression after rewriting it as

$$(3) \quad E_{it} = L_{it} + \beta_i + \alpha_i U_{it} + v_{it} .$$

Of course, L_{it} is not observed and so further hypotheses are clearly required to implement this approach. To proceed suppose that the labor supply of two groups is known to be the same apart from some estimatable function. In particular, assume that for the $i^{\underline{th}}$ age-group the labor supply of black and white workers of the same sex is related as

$$(4) \quad L_{by} = L_{wt} + \gamma_0 + \gamma_1 t + \varepsilon_t ,$$

where ε_t is a disturbance term. The logic of equation (4) is that the same sorts of variables, such as the wage rate and family income, determine the labor supply of black and white workers and these variables ought to move smoothly relative to each other over time.

Finally, writing (3) for black and white workers separately, subtracting the latter from the former, and substituting (4) leads to

$$(5) \quad E_{bt} - E_{wt} = \gamma_0 + (\beta_b - \beta_w) + \gamma_1 t + \alpha_w U_{wt} - \alpha_b U_{bt} + \varepsilon_t' .$$

Although there are a number of econometric difficulties that I shall take up below, equation (5) suggests that a simple regression of the difference in the employment/population rates between blacks and whites on the unemployment/population rates of blacks and whites can, in principle, identify the paramaters α_b and α_w. Note, however, that the parameters β_i and γ_0 cannot be identified so that whether measured unemployment is an upward or downward biased estimate of true unemployment cannot be determined either. Still, estimates of the α_1 parameters are suggestive of the extent to which movements in measured unemployment over time have an unambiguous Keynesian-style interpretation.

Finally, in the case where the parameters α_b and α_w are equal it is possible to write (5) as

$$(5a)\quad E_{bt} - E_{wt} = \gamma_0 + (\beta_b - \beta_w) + \gamma_{1t} + \alpha\,(U_{wt} - U_{bt}) + \varepsilon'_t\ .$$

The form of the estimating equation brings out clearly the simple logic of the empirical exercise I shall report below. In effect, the assumption of a close relationship between the labor supply of blacks and whites implies that with clean measurement of unemployment the slope of the relationship between differences in the employment/population ratios of blacks and whites and differences in the unemployment/population ratios of blacks and whites should be minus unity. It is to my preliminary efforts to estimate this relationship that I shall turn next.

INITIAL ESTIMATES

The estimates of equation (5a) in Tables 2 and 3 for the age groups indicated are based on annual average employment and unemployment per capita over the period 1954 to 1977, which is the period for which consistent data on teenagers are available. I have used annual averages so as to avoid the adjustments in the seasonal pattern of these data that would be necessary using quarterly or monthly data. This strong seasonal pattern also may imply more complicated labor decisions than would be captured by so simple a specification as equation (4) and so it seemed best to avoid these difficulties at this point. I have also fitted these equations in first-differences throughout because initial experimentation with a standard procedure that allowed the disturbances to follow a first-order autoregression produced fitted serial correlation coefficients that were near unity for all groups.

The results for males in Table 2 clearly suggest that for the older groups α is near unity. The results for thirty-five to forty-four-year-olds in Table 2 are included to see how the consistency test implied by equation (5a) works for a prime-aged group where unemployment presumably has the least ambiguous interpretation. As can be seen

TABLE 2

LEAST SQUARES ESTIMATES OF EQUATION (5a)
FOR MALES, 1954-1977

	Estimate[a] of:			
Age Group	Constant	α	R^2	Durbin-Watson Statistic
14 - 15	-.0075 (.0033)	-.922 (.484)	.147	1.71
16 - 17	-.0103 (.0031)	.535 (.178)	.300	2.73
18 - 19	-.0113 (.0038)	1.06 (.190)	.596	2.09
20 - 24	-.0051 (.0026)	.998 (.188)	.574	1.89
35 - 44	-.0014 (.0011)	1.02 (.109)	.808	1.98

[a] Estimated standard errors in parentheses. The data are from the same source as noted in Table 1.

TABLE 3

LEAST SQUARES ESTIMATES OF EQUATION (5a) FOR FEMALES, 1954-1977

	Estimate[a] of:			
Age Group	Constant	α	R^2	Durbin-Watson Statistic
14 - 15	-.0082 (.0030)	-.702 (.464)	.098	2.49
16 - 17	-.0081 (.0033)	-.204 (.323)	.0186	2.86
18 - 19	-.0038 (.0059)	.047 (.343)	.000	2.10
20 - 24	-.0055 (.0043)	1.30 (.438)	.306	1.39
35 - 44	-.0059 (.0022)	.381 (.277)	.082	1.41

[a] Estimated standard errors in parentheses. The data are from the same source as noted in Table 1.

from the table, $\hat{\alpha} = 1.02$ for this group and this estimate is quite precise in the statistical sense, so that these data clearly pass the test. Though somewhat less precise, the estimates for twenty- to twenty-four year-olds and eighteen-year-olds are also very close to unity. The estimate for sixteen- to seventeen-year-olds, on the other hand, is near one-half and is precisely enough estimated that both the hypotheses that $\alpha = 1.0$ and $\alpha = 0.0$ may be firmly rejected. Finally, the estimate of α for fourteen- to fifteen-year-olds has a perverse sign and is estimated precisely enough so that even though the hypothesis $\alpha = 0$ cannot be rejected, the data are not consistent with a value much larger than zero either. In sum, the measured unemployment data for male fourteen- and fifteen-year-olds, and to a lesser extent for sixteen- and seventeen-year-olds, does not behave as would be expected if they were free of measurement error. By comparison, the data for older groups does behave in the expected fashion.

As can be seen from Table 3, the estimates of α for females are imprecisely estimated compared to those for males. Although this may be a result of greater measurement error variance I suspect it is more a result of a larger variance in the relationship between black and white labor supply measures in equation (4) and is a reflection of the known greater volatility in labor supply for women. In either case, however, the estimates of α for all three of the age groups from fourteen through nineteen are not significantly different from zero. Moreover, they are precisely enough estimated that the hypothesis $\alpha = 1.0$ can be firmly rejected. For the twenty- to twenty-four-year-old group $\alpha = 1.3$ and the hypothesis $\hat{\alpha} = 0$ can certainly be ruled out. For the thirty-five to forty-four-year-old group, on the other hand, the estimate of α is closer to zero than unity, but the latter hypothesis can only barely be rejected by the usual tests. Taken together, these results raise serious questions about the interpretation of the measured unemployment statistics for all teenage females.

Table 4 contains the results of relaxing the assumption $\alpha_b = \alpha_w$ and fitting equation (5) to the data for the various age groups. As can be seen from the table, apart from the increase in estimated stand-

TABLE 4

ESTIMATES OF α_b AND α_w FROM EQUATION (5)[a]

Age Group	Estimates for Males		Estimates for Females	
	α_b	α_w	α_b	α_w
14 - 15	-.883 (.513)	-1.36 (1.64)	-.657 (.474)	.770 (2.14)
16 - 17	.531 (.166)	.326 (.453)	-.129 (.329)	.624 (.821)
18 - 19	1.08 (.197)	.942 (.268)	.091 (.364)	-.224 (.717)
20 - 24	.924 (.172)	.630 (.229)	1.22 (.425)	.396 (.811)
35 - 44	.976 (.171)	.903 (.346)	.520 (.304)	1.12 (.732)

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[a] Estimated standard errors in parentheses.

ard errors the results for males are changed very little compared to those in Table 2. Although none of the differences between the estimates of α_b and α_w for males in the table are statistically significant, there is a clear indication that the α estimates for blacks are larger than for whites. This is especially the case for twenty- to twenty-four-year-olds, but it is also the case for all of the other groups as well. Taken at face value these results suggest that the dramatic increases in measured black unemployment rates among the eighteen and over categories are indeed serious constraints on the labor market choices of these workers.

The point estimates for females in Table 4 are also generally unchanged from those in Table 3, but they are even more poorly determined in a statistical sense. As a result it seems pointless to try to draw further conclusions regarding female behavior from these results. Instead, I turn next to a number of econometric problems with these results, including especially an attempt to reduce the imprecision in the estimates of the α_i that is motivated by the imprecision of the estimates for females.

SOME COMPLICATIONS

In the absence of additional data the only way to increase the precision of the estimates of the α_1 parameters in Tables 2 and 3 is by the introduction of some plausible prior information into the estimation process. Since I expected that, if anything, these coefficients would be likely to increase with age this seemed like a plausible place to start. In particular, suppose we assume $\alpha_b = \alpha_w$ and array these coefficients by age so that i is now an index of age. Suppose further that $\alpha_i = \alpha(i)$ is a polynomial function in age. For a particular sex group, and ignoring thirty-five to forty-four-year-olds, this gives four points along the polynomial so that nothing is gained by taking a polynomial greater than degree three because this requires the estimation of four parameters. In fact, I started by assuming that the α_i fell along a first-degree polynomial, then estimated the resulting equations by the familiar "seemingly unrelated regressions" method, and finally tested the implied restrictions.[2] Following this procedure sequentially led to a first-degree polynomial for the female coefficients and a second-degree polynomial for the male coefficients.[3] The estimates of the α_i following this procedure are contained in Table 5.

As can be seen from the table, the coefficient estimates for males change very little from the unrestricted estimates in Table 2 and there is very little gain in statistical precision either. On the other hand, the coefficient estimates for females in Table 5 are also little changed from the unrestricted estimates in Table 3, but estimated standard errors decline by almost one-third. The result is that previous conclusions about females become stronger, with the implication that the interpretation of measured female teenage unemployment rates is even more suspect.

A final serious shortcoming with the least squares estimates of equations (5) and (5a) is that the error terms in those equations may be correlated with the unemployment/population ratios used as right-hand variables in them. For example, a positive fillip to the error term in equation (4) implies that true black labor supply increases relative to true white labor supply. But if measured unemployment really is a component of the offer to sell labor so that $\alpha \neq 0$, then both measured black employment and measured black unemployment may increase. The result is that the composite error term in equation (5a)

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[2] See Arnold Zellner, "An Efficient Method of Estimating Seemingly Unrelated Regressions and Tests for Aggregation Bias," Journal of the American Statistical Association, vol. 57(June 1962), pp.348-68.

[3] The calculated F-ratio for testing the first-degree polynomial restriction against the unrestricted estimates for females was .05, with two and eight-four degrees of freedom. For males this calculated F-ratio was 6.24, which implies clear rejection of the restrictions. With the second degree polynomial the comparable F-ratio was .08 for males. As a matter of interest, the fitted polynomial for females was $\hat{\alpha}_i = .99 + .25i$, where i = 1, 3, 5, and 8.5, and these correspond to the scaled midpoints of the fourteen to fifteen, sixteen to seventeen, eighteen to nineteen, and twenty to twenty-four age ranges. For males the fitted polynomial was $\alpha_i = 1.9 + 1.1i - .11i^2$. The coefficients in Table 5 are estimated values of α_i based on these equations.

TABLE 5

SEEMINGLY UNRELATED REGRESSION ESTIMATES OF $\alpha = \alpha_b = \alpha_w$ CONSTRAINED TO FOLLOW A POLYNOMIAL IN AGE

Age Group	Estimates[a] for Males	Estimates[a] for Females
14 - 15	-.896 (.406)	-.753 (.308)
16 - 17	.491 (.121)	-.261 (.206)
18 - 19	1.03 (.148)	.231 (.182)
20 - 24	.878 (.175)	1.09 (.348)

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[a] Estimated standard errors in parentheses.

will be correlated with the unemployment/population ratio used as an independent variable and the least squares estimator will be biased.

There are two points that may be made about this issue. First, this form of "simultaneity bias" need not invalidate an appropriate test of the hypothesis $\alpha=0$ based on the least squares estimates. After all, under this null hypothesis the error term and the unemployment ratio will be uncorrelated so that the probability of a type 1 error will be properly controlled even though the power of this test may be exceedingly low. Second, it is in principle possible to remedy this deficiency by adopting an appropriate instrumental variable estimator.

In practice I have experimented with a simple instrumental variable estimator for equation (5a) with only mixed success. I have used the employment/ population ratios for black and white thirty-five to forty-four-year-old adults as instruments for the difference between the unemployment/population ratios of the various younger groups. As could be predicted from the low explained variances for females in Table 3 this procedure led to estimated standard errors for the α coefficients for the female groups that were so large as to render the estimates themselves useless. The results for the male groups were somewhat better determined and they are contained in Table 6.

As can be seen from the table these estimates of the α_i coefficients for males are generally larger than the least squares estimates in Table 2. Still, the basic conclusions remain generally unchanged. For the fourteen- to fifteen-year-old group the estimate of α is essentially zero as before. For the sixteen- to seventeen-year-old group the estimate of α is now greater than unity, but its associated standard error is so large as to render this conclusion very weak. Clearly, better estimates along these lines would be useful and this may be a good topic for future research.

CONCLUSIONS

In this paper I have set out a simple consistency check on the extent to which measured teenage unemployment behaves as if it were a part of the offer to sell labor. The basic idea behind this consistency check is that if labor supply were a known quantity and if unemployment were measured without error there would be a one-to-one negative relationship between employment and unemployment. Of course, the labor supply of any group is unobserved, but if two groups offered the same quantity of labor to the market then there would still be an observable one-to-one negative relationship between the differences in employment and unemployment for the two groups. I implement this scheme empirically for male and female fourteen to fifteen, sixteen to seventeen, eighteen to nineteen, twenty to twenty-four, and thirty-five to forty-four year-olds by assuming that the unobserved labor supply of blacks and whites is identical apart from a constant and steady trend. Although there are a number of econometric difficulties associated with this procedure the results suggest that for males eighteen and over and for females twenty and over there is a clear negative relationship between employment and unemployment differences, but that for younger groups there is not. This suggests that considerable research and experimentation with the measurement of teenage unemployment should be undertaken before these statistics are taken at face value.

YOUTH PARTICIPATION RATES AND THE AVAILABILITY OF JOBS

By: Francine D. Blau

ABSTRACT

This paper uses data from the National Longitudinal Surveys to examine the relationship between local area unemployment rates and the labor supply behavior of youth aged eighteen to twenty-four in 1970. The net effect of the unemployment rate on the probability of labor force participation in 1970 is found to be negative. Net discouragement appears to be greater among young women than among young men, and to be larger among blacks than among whites. Since local labor market unemployment rates tend to be correlated over time, the coefficient on the unemployment rate variable in the participation regressions was held to approximate a long-term supply response to persistent intercity differences. The net impact of the unemployment rate on labor supply adjustments over a one-year period is also examined. No significant effect of the unemployment rate on the probability of labor force entry or exit between 1970 and 1971 is obtained.

These findings suggest that net effect of the ups and downs of the business cycle on the labor force participation of youth would not be very great. However, prolonged periods of high unemployment could produce net discouragement for this age group. At the level of the local labor market our results suggest the efficacy and importance of policies designed to stimulate aggregate demand in depressed labor markets.

INTRODUCTION

The level of economic activity may have both direct and indirect effects on young adults.* Economic conditions directly affect the probability of becoming unemployed and current earnings. In addition, the unemployment rate may indirectly affect youth by influencing their labor force participation decisions. This paper investigates the responsiveness of the labor supply of young men and women to the level of unemployment.

Economists view the response of labor supply to the unemployment rate as being the net result of two opposing effects. The additional worker effect predicts that, during times of high unemployment, if the primary earner(s) becomes (become) unemployed, other family members may enter or postpone exit from the labor force in order to maintain family income. Such individuals may leave the labor force when economic conditions improve and the primary earner(s) is (are) again employed on a regular basis. Alternatively, the discouraged worker effect holds that, during times of high unemployment, when individuals become unemployed, they may become discouraged and drop out of the labor force after a fruitless period of job search. Others may postpone labor force entry until economic conditions improve. Theoretically both these effects may operate simultaneously on labor force entries and exits to produce a net effect on labor force participation. The direction of this net effect must be determined empirically, although the cyclical sensitivity of labor supply behavior is expected to be greater for groups which have traditionally had a weaker attachment to the labor force, like married women and young adults.

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*I am indebted to Lawrence Kahn for helpful comments and suggestions. I would like to thank Ronald Seeber for research assistance. Any remaining errors or omissions are the responsibility of the author.

Knowledge of the direction and magnitude of the net effect of the unemployment rate on the labor force participation of youth has extremely important policy implications. If the discouraged worker effect prevails, unemployment statistics will tend to underestimate the job creation task ahead for this group. This may result in the adoption of monetary and fiscal policies which are not sufficient to reach desired goals. In addition, to the extent that time out of the labor force is spent unproductively, young people will suffer negative effects on their subsequent earnings due to delayed labor force entry and/or breaks in their work histories.

If the additional worker effect is dominant, unemployment statistics will tend to overestimate the future need for jobs, possibly resulting in over-stimulatory macro-policies and exacerbated inflation problems. In addition, the need to supplement family income may cause young people to interrupt or curtail their schooling with negative consequences on their future earning power. In addition, to the extent that young people are concentrated in particular occupations or industries, accelerated entry during recessions would increase competition for these jobs and worsen employment conditions in these sectors.

The empirical evidence on the direction and magnitude of the discouraged-additional worker effect is mixed. Recent time series studies suggest that, in most cases, the discouraged worker effect predominates, but that the negative effect of the unemployment rate on labor force participation is not very large.[1] Using gross flow data from the current population survey, Smith presents evidence suggesting that the observed cyclical sensitivity of the labor force is due to the increase in the number of unemployed workers during a recession coupled with the strong likelihood of leaving the labor force when unemployed. According to Smith, postponement of labor force entry during times of high unemployment does not play an important role.[2] Such time series studies suffer from a lack of detailed data on the personal characteristics of workers. This means that the time series results do not unambiguously measure the impact of changes in the unemployment rate on the labor supply decisions of otherwise identical individuals, since the estimated relationship is affected by compositional factors as well.

Cross-sectional studies may be regarded as measuring the long-run impact of unemployment on participation rates. They generally indicate that the impact of the local labor market unemployment rate on the area labor force participation rate is negative, significant, and larger than the results obtained for time series studies.[3] However, such findings have been questioned by Fleisher and Rhodes because of the aggregation problems entailed in the use of average data for the local labor market. After correcting for these problems, Fleisher and

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[1] See, for example, Michael Wachter, "A Labor Supply Model for Secondary Workers,: The Review of Economcs and Statistics, vol. 54 (May 1972) and Peter Barth, "Unemployment and Labor Force Participation," Southern Economic Journal, vol. 34 (January 1968). For an excellent review of the early literature on this subject, see Jacob Mincer, "Labor Force Participation and Unemployment: A Review of Recent Evidence" in Margaret Gordon and Robert Gordon, eds., Prosperity and Unemployment (New York: John Wiley and Sons, 1966).

[2] Ralph Smith, "The Discouraged Worker in a Full Employment Economy," Proceedings of the American Statistical Association, Business and Economics Section, 1974.

[3] See, for example, William Bowen and T. Aldrich Finegan, The Economics of Labor Force Participation (Princeton, N.J.: Princeton University Press, 1969).

and Rhodes find no evidence that the unemployment rate has a significant negative effect on the labor force participation rate.[4] However, using microdata for a sample of mature married women, Blau found evidence of significant net discouragement among whites and a significant additional worker effect among blacks.[5]

This paper uses data from the National Longitudinal Surveys of Young Men and Women to examine the impact of the unemployment rate on labor force participation.[6] The sample is restricted to youth aged eighteen to twenty-four in 1970, the initial year of the analysis. A cross-sectional approach is used in which the impact of the local labor market unemployment rate is ascertained while the effects of other variables which influence labor supply behavior are held constant. Since data on individuals are used, aggregation problems are not an issue.

The net effect of the level of unemployment is investigated by introducing the local labor market unemployment rate into regression equations estimating: (1) the probability that a respondent will participate in the labor force during the 1970 survey week, (2) the conditional probability that a respondent will enter the labor force by the 1971 survey week (given s/he is out of the labor force at the time of the 1970 survey), and (3) the conditional probability that a respondent will exit the labor force by the 1971 survey week (given s/he is in the labor force at the time of the 1970 survey). Local unemployment rates tend to be correlated over time. Thus, the measured impact of the unemployment rate on the participation probability (specification one) would reflect long-term adjustments to persistent intercity differences. Where the focus is upon labor force entry and exit, as in specifications two and three, a one-year period has been allowed for the change in labor supply behavior to take place. If, for example, there are considerable transaction costs involved in moving into and out of the labor force,[7] the impact of the unemployment rate on supply behavior may be less in the case of entry and exit probabilities than in the case of the participation probabilities. Moreover, both types of cross-sectional estimates may exceed the cyclical sensitivity of labor supply to short-term changes in the unemployment rate.[8]

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[4] Belton Fleisher and George Rhodes, "Unemployment and the Labor Force Participation of Married Men and Women: A Simultaneous Model," The Review of Economics and Statistics, vol. 58 (November 1976). See also Belton Fleisher and George Rhodes, "Individual Labor Force Decisions and Unemployment in Local Labor Markets: A Foundation for Policy Planning," unpublished working paper, undated. The authors claim that OLS estimates using aggregate cross-sectional data are biased, since unemployment rates in local labor markets are in fact determined simultaneously with labor force participation rates.

[5] Francine Blau, "The Impact of the Unemployment Rate on Labor Force Entries and Exits," unpublished paper presented at the Secretary of Labor's Invitational Conference on the National Longitudinal Surveys of Mature Women, Washington, D.C., January 26, 1978.

[6] For a description of the National Longitudinal Surveys data for these cohorts see Paul Andrisani and Andrew Kohen, Career Thresholds: A Longitudinal Study of the Educational and Labor Market Experience of Male Youth, vol. 5 (Columbus, Ohio: Center for Human Resource Research, Ohio State University, 1975) and Frank Mott, et al., Years for Decision: A Longitudinal Study of the Educational, Labor Market and Family Experiences of Young Women, 1968 to 1973, vol. 4 (Columbus, Ohio: Center for Human Resource Research, Ohio State University, 1977).

In the participation regression, the dominance of the discouraged worker effect would be indicated by a negative coefficient on the unemployment rate, the dominance of the additional worker effect, by a positive coefficient. In the entry and exit regressions, an increase in the unemployment rate would, other things equal, work to decrease the probability of entering the labor force and/or to increase the probability of exiting the labor force, if the discouraged worker effect predominates. If the additional worker effect is dominant, a rise in the unemployment rate would, all else equal, be associated with an increase in the probability of entering the labor force and/or a decrease in the probability of exiting the labor force.

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[7] James Heckman and Robert Willis, "A Beta-logistic Model for the Analysis of Sequential Labor Force Participation by Married Women," Journal of Political Economy, vol. 85 (February 1977).

[8] On the other hand, the sample includes individuals who changed their residences between 1970 and 1971. Such an opportunity to alter the labor market conditions one faces through intercity migration has no counterpart when the national economic situation is the relevant context. This consideration would reduce the magnitude of the upward bias discussed in the text (of the cross-sectional as compared to the cyclical responses), but most probably would not eliminate it. It was decided to include individuals who changed their residences over the period so as to eliminate any selectivity bias that would result from restricting the sample to those who did not attempt to alter their situation. See Edward Kalachek, Donald Larson and Fredrick Raines, "An Investigation of Dynamic Labor Supply Adjustment," unpublished working paper prepared for the Employment and Training Administration, U.S. Department of Labor, March 1977, for an analysis which considers the question of the speed with which labor supply adjustments in work hours are made.

The labor force status of the young men and women in the sample is summarized in Table 1. In this age group, male labor force participation rates were one quarter to a third higher than female rates in 1970. Women were somewhat more likely than men to experience unemployment, while the incidence of unemployment among blacks was considerably higher than among whites. Young women were four times as likely as young men to exit from the labor force between 1970 and 1971, and one half to three fifths as likely to enter the labor force between those two years.

THE MODEL

The labor force participation decision of an individual may be conceptualized as one in which the individual and his or her family determine the allocation of each member's time between work in the market and various nonmarket activities such as school attendance (investment in future market productivity), home work and leisure.[9] This decision process involves comparing the relative advantages of market and nonmarket activities at each point in time. An individual participates in the labor force at time t if the value of his or her time in the market, w_t, exceeds the value of his or her time in nonmarket activities, w_t^*.

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[9] See, for example, Gary Becker, "A Theory of the Allocation of Time," The Economic Journal, vol. 75 (September 1965); Jacob Mincer, "Labor Force Participation of Married Women: A Study of Labor Supply" in H. Gregg Lewis, ed., Aspects of Labor Economics, A Conference of the Universities--National Bureau Committee of Economic Research (Princeton, N.J.: Princeton University Press, (1962); Reuben Gronau, "The Intrafamily Allocation of Time: The Value of the Housewives' Times," American Economic Review, vol. 63 (September 1973); and James Heckman, "Shadow Prices, Market Wages and Labor Supply," Econometrica, vol. 42 (July 1974).

TABLE 1

LABOR FORCE STATUS, 1970-71
(percent)

	Whites	Blacks
Males	(n = 1840)	(n = 681)
Labor Force Status, 1970		
Employed	75.1	74.6
Unemployed	6.3	12.0
Out of Labor Force	18.6	13.4
Change in Status, 1970-71		
Entry rate[a]	55.7	60.4
Exit rate[b]	4.8	5.6
Females	(n = 2163)	(n = 851)
Labor Force Status, 1970		
Employed	54.6	46.2
Unemployed	6.7	13.0
Out of Labor Force	38.7	40.8
Change in Status, 1970-71		
Entry rate[a]	29.2	37.5
Exit rate[b]	20.0	23.4

[a] Proportion of those respondents who were out of the labor force during the 1970 survey week who had entered by the 1971 survey week.

[b] Proportion of those respondents who were in the labor foce during the 1970 survey week who had exited by the 1971 survey week.

(w_t* is the shadow price of time in nonmarket activities when zero work hours are supplied to the market.) S/he does not participate if w_t is less than w_t*. The tendency of many families to practice sex role specialization in the allocation of market and nonmarket tasks means that the same variables will not necessarily influence the value of w* in the same way for men and women. For example, other things equal, marriage may raise w* for women, but lower it for men. It is also important to point out that labor market discrimination on the basis of race or sex may influence labor supply decisions by lowering w. In the context of the labor supply model, individuals are viewed as pursuing optimizing behavior. However, outcomes are not necessarily optimal from a social point of view, since they may reflect a disadvantaged labor market status for some individuals.[10]

An individual may change his or her labor force status between time t and t+1 if the value of market and/or home time changes. The effect of a given change in the value of market or home time depends, however, on the initial situation, that is, the relative magnitudes of w_t and w_t*. For example, suppose over the course of a year a woman has an additional child. This is expected to increase the value of her nonmarket time. If she was previously in the labor force, will she now exit? Not necessarily. If the value of her market time initially greatly exceeded the value of her nonmarket time, then it is possible that she will remain in the labor force. On the other hand, were the gap between w_t and w_t* smaller, she might exit. Thus, the probability of labor force exit or entry depends on both the initial values of home and market time and on the changes in those values that have occurred over the period.

While the notions of the value of market time and nonmarket time are useful theoretical concepts, it is generally not possible to observe directly or measure w_t and w_t*. This is obviously the case with respect to the value of nonmarket time. The value of market time, in the form of the market wage rate, can be observed for individuals who are currently employed. However, even in this case, it is not clear that the observed wage rate fully represents all aspects of the value of market time. The value of an individual's time spent in the market depends on the nonpecuniary as well as the pecuniary aspects of his or her work. It depends not simply on the current wage, but on the prospects for wage growth in the future and the wage penalty associated with the labor force withdrawal in each type of work. In addition, if an individual becomes unemployed, the alternative opportunities open to him or her must also be considered,[11] and market conditions must be taken into account.

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[10] Marianne Ferber and Bonnie Birnbaum ("The 'New Home Economics': Retrospects and Prospects," Journal of Consumer Research, vol. 4 (June 1977) have criticized household decision-making models for their assumption of rationality and underemphasis of the role of tradition in determining the division of tasks within the family.

Thus it may be both necessary and desirable to represent both w_t and w_t^* by the set of exogenous variables that determine them, rather than by their actual values. In this study, labor supply behavior is explained by a vector of personal characteristics, including race, education, potential experience, health, marital status, number of dependents, and net family assets, and labor market characteristics, including the labor market unemployment rate, the size of the local labor market and southern residence (Table 2).

In the exit regressions, job characteristics such as union coverage and occupation are included to represent such factors as the nonpecuniary aspects of work, opportunities for wage growth through employment and the wage penalties for discontinuous participation. However, the ability to locate a job with specific characteristics may depend on economic conditions in the locality. In addition, job characteristics may represent self-selection as well as environmental factors. Thus results are presented both with and without these variables included.

In both the entry and exit regressions, the impact of changes over the 1970-71 period are considered. Changes in some of the explanatory variables were not considered to be solely causes of changes in

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[11] That is, the whole wage distribution must be considered.

TABLE 2

VARIABLE DEFINITIONS

Dependent Variables

ILF	Dummy variable equaling one if respondent was in the labor force during the 1970 survey week, and zero otherwise.
NL	Dummy variable equaling one if respondent was in the labor force during the 1971 survey week (given respondent was out of the labor force at the time of the 1970 survey), and zero otherwise.
LN	Dummy variable equaling one if respondent was out of the labor force during the 1971 survey week (given respondent was in the labor force at the time of the 1970 survey), and zero otherwise.

Explanatory Variables

RACE	Dummy variable equaling one if respondent is black, and zero otherwise.
ED	Highest grade attained (years).
POTEXP	Potential labor market experience = Age - Education - Six. Experience is constrained not to begin before age 14.
HEALTH	Dummy variable equaling one if health limits the kind or amount of work the respondent can do, and zero otherwise.
MSP	Dummy variable equaling one if respondent is married spouse present, and zero otherwise.
DEPS	Number of dependents, excluding spouse.
ASSET	Net family assets ($1,000s).
UNION	Dummy variable equaling one if respondent's wages are set by collective bargaining, and zero otherwise.
PTM	Dummy variable equaling one if respondent is a professional, technical or managerial worker, and zero otherwise.
SERV	Dummy variable equaling one if respondent is a service worker, and zero otherwise.
UE	Local labor market unemployment rate (annual average).
SOUTH	Dummy variable equaling one if respondent resides in the south, and zero otherwise.
SIZE	Size of local labor market (100,000s).

TABLE 2
VARIABLE DEFINITIONS (con'd.)

CHDEP	Change in number of dependents.
CHMSP	Dummy variable equaling one if respondent changes marital status to married spouse present, and zero otherwise.
CHWDS	Dummy variable equaling one if respondent changes marital status from married spouse present to widowed, divorced or separated, and zero otherwise.
CHIH	Dummy variable equaling one if respondent's health improves, and zero otherwise.
CHDH	Dummy variable equaling one if respondent's health deteriorates, and zero otherwise.
UERACE	UE X RACE.

the individual's labor force behavior. For example, the magnitude of assets might change as other family members respond to a change in the individual's behavior. In addition, changes in assets over the period may be due to economic conditions, and thus should be omitted so that the full effect of economic conditions is captured by the unemployment rate variable. The impact of changes in educational attainment over the period would also be ambiguous as to causation. The focus is upon changes in health, marital status and number of dependents. It may be argued that changes in labor force status, marital status and number of dependents between 1970 and 1971 are all determined simultaneously. The assumption made here is that changes in marital status and number of dependents are determined prior to the change in labor force behavior. This means that these variables will be uncorrelated with the error term so that unbiased parameter estimates may be obtained with ordinary least squares. However, in this case also, the regression results are presented with and without these variables included.

EMPIRICAL RESULTS

The regression results obtained using ordinary least squares are shown in Table 3 for young men and Table 4 for young women.[12] The relatively low adjusted R^2's for the regressions are characteristic of cross-sectional studies, particularly in the case of binary dependent variables. In addition, small sample size is a problem in the case of the male entry regression.

The strongest results for the unemployment rate are found in the labor force participation regressions (equation 1). The coefficient on the unemployment variable is negative and significant in the female regression and negative and larger than its standard error in the male regression. The inclusion of a racial interaction term in equation 2 suggests that net discouragement is greater among blacks than whites (although the racial difference is not significant in the case of males). Other things equal, a one percentage point rise in the labor market unemployment rate would result in a decrease of 1.06 percentage

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[12] Considerations of time precluded experimentation with the more appropriate logit or probit specifications.

TABLE 3

REGRESSION RESULTS: YOUNG MEN

(Standard Errors)

Explanatory Variables	Participation (ILF)		Entry (NL)		Exit (LN)		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Personal Characteristics (1970)							
RACE	0.03946[b]	0.05564	-0.01521	-0.02234	0.02142[c]	0.025292[b]	0.02483[b]
	(0.01807)	(0.04351)	(0.07053)	(0.07178)	(0.01262)	(0.01272)	(0.01279)
ED	0.00212	0.00211	0.01271	0.01462	-0.00519	-0.00437	-0.00403
	(0.00459)	(0.00459)	(0.01974)	(0.02007)	(0.00315)	(0.00333)	(0.00334)
POTEXP	0.03386[a]	0.03388[a]	0.03977[b]	0.04192[b]	-0.01285[a]	-0.01271[a]	-0.01226[a]
	(0.00442)	(0.00443)	(0.01956)	(0.01968)	(0.00298)	(0.00300)	(0.00304)
HEALTH	-0.03878	-0.03891	0.04885	0.20517	-0.00100	0.00011	0.00328
	(0.02614)	(0.02615)	(0.10153)	(0.16783)	(0.01945)	(0.01944)	(0.03198)
MSP	0.13631[a]	0.13624[a]	0.24570[c]	0.24661[c]	-0.01885	-0.01824	-0.02392[c]
	(0.01967)	(0.01967)	(0.14469)	(0.14755)	(0.01270)	(0.01273)	(0.01410)
DEPS	0.00919	0.00926	-0.00583	-0.00444	0.00184	0.00206	-0.00062
	(0.01052)	(0.01052)	(0.12046)	(0.12138)	(0.00667)	(0.00667)	(0.00751)
ASSET	0.00125	0.00126	-0.01227	-0.01181	-0.00020	-0.00020	-0.00022
	(0.00095)	(0.00095)	(0.01179)	(0.01182)	(0.00058)	(0.00058)	(0.00058)
Job Characteristics (1970)							
UNION						-0.01872	-0.01638
						(0.01196)	(0.01201)
PTN						-0.00841	-0.00902
						(0.01579)	(0.01579)
SERV						-0.03349[b]	-0.03426[b]
						(0.01844)	(0.01843)

TABLE 3 ·

REGRESSION RESULTS: YOUNG MEN
(continued)

Explanatory Variables	Participation (ILF)		Entry (NL)		Exit (LN)		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Labor Market Characteristics (1970)							
UE	-0.00545 (0.00357)	-0.00445 (0.00433)	0.00298 (0.01240)	0.00157 (0.01247)	-0.00212 (0.00249)	-0.00183 (0.00250)	-0.00180 (0.00249)
SOUTH	-0.04592[a] (0.01763)	-0.04558[a] (0.01766)	0.10441 (0.06355)	0.09188 (0.06490)	-0.02519[b] (0.01223)	-0.02816[b] (0.01241)	-0.02674[b] (0.01242)
SIZE	0.00015 (0.00070)	0.00015 (0.00070)	0.00113 (0.00250)	0.00113 (0.00251)	0.00028 (0.00049)	0.00029 (0.00049)	0.00028 (0.00049)
Changes (1970-71)							
CHDEP				0.06159 (0.04716)			-0.00678 (0.00811)
CHMSP				0.05641 (0.11789)			-0.04286[b] (0.01708)
CHWDS				(n.a.)			0.01697 (0.03744)
CHIH				-0.24049 (0.20266)			-0.00220 (0.03920)
CHDH				-0.03670 (0.14002)			0.01539 (0.02612)
Interaction							
UERACE		-0.00310 (0.00758)					

TABLE 3.

REGRESSION RESULTS: YOUNG MEN
(continued)

Explanatory Variables	Participation (ILF)		Entry (NL)		Exit (LN)		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Constant Term	0.71350	0.70821	0.31490	0.29625	0.16322	0.16021	0.16179
Adjusted R^2	0.107	0.107	0.018	0.016	0.021	0.023	0.025
F-statistic	29.864	27.154	1.649	1.418	4.745	4.077	3.413
Observations	2398	2398	353	353	1717	1717	1717

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n.a. not applicable.

[a] Significant at the 1% level on a two-tailed test.

[b] Significant at the 5% level on a two-tailed test.

[c] Significant at the 10% level on a two-tailed test.

TABLE 4. REGRESSION RESULTS: YOUNG WOMEN

(Standard Errors)

Explanatory Variables	Participation (ILF)		Entry (NL)		Exit (LN)		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Personal Characteristics (1970)							
RACE	0.03069	0.16132[a]	0.09267[a]	0.07999[b]	0.01748	0.02683	0.01933
	(0.02284)	(0.05738)	(0.03535)	(0.03583)	(0.02502)	(0.02508)	(0.02507)
ED	0.05843[a]	0.05848[a]	0.01737[b]	0.01687[c]	-0.03738[a]	-0.03760[a]	-0.03309[a]
	(0.00593)	(0.00592)	(0.00880)	(0.00878)	(0.00702)	(0.00776)	(0.00771)
POTEXP	0.03955[a]	0.03986[a]	-0.01873[b]	-0.01840[c]	-0.02337[a]	-0.022390[a]	-0.02429[a]
	(0.00573)	(0.00572)	(0.00938)	(0.00941)	(0.00614)	(0.00615)	(0.00610)
HEALTH	-0.08587[b]	-0.08572[b]	0.00403	-0.08598	0.08238	0.07335	0.02752
	(0.04299)	(0.04295)	(0.05908)	(0.09863)	(0.05179)	(0.05160)	(0.07836)
MSP	-0.11871[a]	-0.11820[a]	-0.04093	-0.05466	0.06078[a]	0.061464[a]	0.07437[a]
	(0.02202)	(0.02200)	(0.03629)	(0.03911)	(0.02330)	(0.02319)	(0.02477)
DEPS	-0.08592[a]	-0.08687[a]	-0.01135	-0.01214	0.03505[b]	0.03245[b]	0.05217[a]
	(0.01202)	(0.01202)	(0.01771)	(0.01846)	(0.01421)	(0.01416)	(0.01445)
ASSET	-0.00044	-0.00049	-0.00161	-0.00140	0.00145	0.00142	0.00108
	(0.00085)	(0.00085)	(0.00121)	(0.00120)	(0.00099)	(0,00099)	(0,00098)
Job Characteristics (1970)							
UNION						-0.08794[a]	-0.09249[a]
						(0.02697)	(0.02655)
PTM						0.04882	0.03445
						(0.03489)	(0.03443)
SERV						0.06670[b]	0.06266[b]
						(0.02818)	(0.02788)

TABLE 4. REGRESSION RESULTS: YOUNG WOMEN
(continued)

Explanatory Variables	Participation (ILF)		Entry (NL)		Exit (LN)		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Labor Market Characteristics (1970)							
UE	-0.01994[a] (0.00554)	-0.01061 (0.00669)	0.00149 (0.00812)	-0.00041 (0.00808)	-0.00051 (0.00635)	0.00050 (0.000634)	-0.00061 (0.00625)
SOUTH	-0.01840 (0.02199)	-0.01540 (0.02200)	0.02019 (0.03462)	0.02998 (0.03459)	-0.00277 (0.02384)	-0.01379 (0.02401)	-0.01395 (0.02363)
SIZE	-0.00030 (0.00090)	-0.00035 (0.00090)	-0.00108 (0.00146)	-0.00110 (0.00146)	0.00031 (0.00094)	0.00046 (0.00094)	0.00075 (0.00094)
Changes (1970-71)							
CHDEP				-0.01345 (0.02708)			0.09690[a] (0.01791)
CHMSP				0.04273 (0.05953)			0.14225[a] (0.03205)
CHWDS				0.39492[a] (0.09321)			-0.08668 (0.06392)
CHIH				0.14553 (0.11880)			0.09977 (0.10148)
CHDH				0.01511 (0.07181)			0.05814 (0.05317)
Interaction							
UERACE		-0.02866[b] (0.01155)					

TABLE 4. REGRESSION RESULTS: YOUNG WOMEN
(continued)

Explanatory Variables	Participation (ILF)		Entry (NL)		Exit (LN)		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Constant Term	0.00595	-0.03855	0.16746	0.17693	0.66660	0.66235	0.57968
Adjusted R^2	0.085	0.087	0.044	0.060	0.027	0.037	0.068
F-Statistic	24.390	22.778	5.485	5.103	5.321	5.576	7.225
Observations	2506	2506	971	971	1531	1531	1531

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[a] Significant at the 1 percent level on a two-tailed test.

[b] Significant at the 5 percent level on a two-tailed test.

[c] Significant at the 10 percent level on a two-tailed test.

points in the participation probability of white young women and 3.92 percentage points in the participation probability of black young women. Among males, the effects are smaller. An increase of one percentage point in the unemployment rate would reduce the participation probability by .45 percentage points for whites and .76 percentage points for blacks.

No evidence of a significant net effect of the unemployment rate on entry or exit probabilities is obtained. (These findings were not altered by the inclusion of a racial interaction term.) Unfortunately, since the regression coefficient measures the net effect of the unemployment rate, it is not possible to infer anything regarding the magnitudes of the additional and discouraged worker effects taken separately. However, it seems reasonable to suppose that these findings support our expectation of a larger impact of the unemployment rate on the long-term labor supply adjustments estimated in the participation regressions than on the shorter-term adjustments estimated in the entry and exit regressions.

The regression results shed light on a number of other factors influencing young people's labor supply decisions. At the mean unemployment rate, blacks have a higher probability of participating in the labor force than their white counterparts. However, while black females are more likely to enter the labor force than their white counterparts, black males have a higher probability of exiting than whites. This suggests that the racial differential in participation probabilities among males would be narrowed or even reversed as the cohort ages, while the participation gap among females would be widened. (This accords with cross-sectional data on labor force participation by race.)[13]

The regression results bear out our expectation that, given the current division of labor by sex in many families, demographic factors affect male and female participation differently. Marriage is strongly positively correlated with male participation. Additional dependents tend also to be positively related to participation. (The lack of statistical significance of DEPS and CHDEP, as well as the occasional inconsistent signs of the former are probably due to their colinearity with marital status.) Among females, marriage and additional dependents are strongly negatively related to participation. Marital dissolution over the period is a strong predictor of labor force entry (equation 4).

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[13] Employment and Training Report of the President (Washington, D.C.: Government Printing Office, 1976), pp. 217-218.

Such demographic variables appear to be an important factor in the large sex difference in exit rates for this age group that was noted earlier. Among females, other things equal, remaining or becoming married (spouse present) during the period is positively associated with the probability of exiting the labor force. Similarly the presence of dependents and increases in the number of dependents over the period contributed to an increase in the exit rate, all else equal. However, after controlling for the impact of such factors, variables correlated with market opportunities such as education, potential experience, union coverage and occupation are also important. This suggests that narrowing sex differences in market opportunities might reduce sex differences in labor supply behavior.

CONCLUSION

This paper used data from the National Longitudinal Surveys to examine the relationship between local area unemployment rates and the labor supply behavior of youth aged eighteen to twenty-four in 1970. The net effect of the unemployment rate on the probability of labor force participation in 1970 was found to be negative. Net discouragement appeared to be greater among young women than among young men, and to be larger among blacks than among whites. Since local labor market unemployment rates tend to be correlated over time, the coefficient on the unemployment rate variable in the participation regressions was held to approximate a long-term supply response to persistent intercity differences. The net impact of the unemployment rate on labor supply adjustments over a one-year period was also examined. No significant effect of the unemployment rate on the probability of labor force entry or exit between 1970 and 1971 was obtained.

The possibility that these findings are an artifact of the particular time period investigated cannot be dismissed.[14] In particular, it would be interesting to confirm these results for a period when the national unemployment rate was above 4.9%,[15] the average for 1970. However, we may tentatively conclude that these findings are consistent with the notion that there exist considerable transactions costs of moving into and out of the labor force and that the impact of the unemployment rate on the long-term determination of labor supply exceeds its impact on short-term adjustments over a one-year period. This in turn leads us to expect that the net effect of the ups and downs of the business cycle on the labor force participation of youth would not be very great. However, prolonged periods of high unemployment could produce net discouragement for this age group. At the level of the local labor market our results suggest the efficacy and importance of policies designed to stimulate aggregate demand in depressed labor markets.

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14. Stanley Stephenson, Jr. ("The Transition from School to Work of Young Men," unpublished working paper, December 1977) found no real impact of last year's labor market unemployment rate on young men's school enrollment and labor force participation probabilities for the years 1967 and 1969.

15. Employment and Training Report of the President, p. 211.

FAMILY STATUS AND LABOR FORCE PATTERNS

By: Martha S. Hill

ABSTRACT

Shifts in both parental and own living arrangements among youth and young adults are analysed in terms of their effects on the labor supply of these groups. A general theoretical model of household utility maximization based on the youth's evaluation of household member preferences is applied to a sample of noninstitutional individuals aged sixteen to twenty-four in 1975 who were classified as a child of the household head of a Panel Study of Income Dynamics (PSID) family in 1968 using Multiple Classification Analysis (MCA). The results indicate that there is a strong correlation between living arrangements and labor supply as measured by employment incidence and mean hours worked with young people living alone supplying significantly more labor than those still living in parental households. Males living away from parents but not alone have greater labor supply than their female counterparts. Black males are the only survey group whose labor supply is at all affected by parental living arrangements and they are affected negatively in terms of incidence and hours of work. However, a more reliable survey instrument on living arrangements and labor supply to better be able to discern the interrelationships and the direction of causality is clearly needed.

INTRODUCTION

In recent years there have been substantial shifts in the family status of American youth, both in terms of their own living arrangements and the living arrangements of their parents. Since household structure is fundamentally associated with life style, these shifts, no doubt, have implications for many facets of the lives of American youth. This paper will explore one such facet--labor supply. It will concentrate on the major types of changes in household structure affecting youth and the associated changes in their labor force behavior. It will also discuss implications of this analysis and the needs for further research.

Trends in Living Arrangements

Over the last decade and a half, the size of American households has been steadily declining. The average number of persons per household has decreased from 3.33 in 1960, to 3.14 in 1970, 2.94 in 1975, and 2.86 in 1977.[1] The major factors contributing to this decline have been shifts toward one-person households and one-parent households combined with falling fertility rates. Given the subject matter of this paper, aspects of these factors which are most relevant to youth will be examined here.

Recent years have seen an increasing tendency toward independent living by young adults who are postponing marriage. The percent of young adults aged eighteen to twenty-four who were yet to marry has risen steadily since 1960.[2] And as the proportion of young adults remaining single has increased, so too has the tendency of these persons to establish their own households. This trend has contributed to the 40% increase from 1970 to 1976 in the proportion of all households consisting of one person.[3]

Another factor in the changing family status of young adults has been declining fertility. The number of children ever born per 1,000 women in the age ranges fifteen to nineteen and twenty to twenty-four in 1975 were half of what they were in 1960. These changes are not entirely the result of the trend toward remaining single. Among ever-married women in these age ranges, the percent who were childless rose substantially between 1960 and 1975, with the percent of ever-married women aged twenty to twenty-four who were childless increasing from 24.2 to 42.8.[4]

At the same time that these changes have been taking place, there has been a growing trend toward one-parent households. From 1960 to 1976, the proportion of children under age eighteen living with both parents fell from 87.5% to 80.0%, with most of this change due to a rise

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1. U.S. Bureau of the Census, Current Population Reports, Series P-20, No. 313, September 1977.
2. U.S. Bureau of the Census, Current Population Reports, Series P-30, No. 292, March 1976, Table 7.
3. Paul C. Glick and Arthur J. Norton, Population Bulletin: Marrying, Divorcing, and Living Together in the U.S. Today (Washington, D.C.: Population Reference Bureau, Inc., 1977), p. 31.
4. U.S. Bureau of the Census, Current Population Reports, Series P-20, No. 292, March 1976, Table 4.

in the proportion of children living with their mothers only.[5] Black children have been particularly affected by the growth of one-parent households, with the proportion of black children under age eighteen living with both parents falling from 71% in 1965[6] to 50% in 1976.[7]

Greater marital disruption has been the major contributor to the growth in one-parent households.[8] Divorce rates have increased substantially since 1960, and desertions have been on the rise in recent years. But rising illegitimacy rates have also been a primary contributor. In the past twenty-five years the illegitimacy rate has more than doubled, from 4 per 100 live births to 10 per 100 live births, with about 80% of illegitimate births now being attributable to women under age twenty-five.[9] These trends have resulted in greater proportions of young adults coming from "broken homes" and living unmarried with children of their own.

In sum, recent years have seen young adults shifting away from marriage with children toward more independent living, either alone or with children, and an increase in their probability of having lived with one parent only at sometime, with this probability likely to increase even more in the future.[10]

Related Literature

Studies of the effects of family status and living arrangements of youth on their labor force behavior are few and far between. Bowen and Finegan, in their epic 1969 volume on labor force participation, touch on this subject.[11] They analyze the cross-sectional effects of the presence of both parents on labor supply of never-married children aged fourteen to seventeen and the cross-sectional effects of marriage on the labor force behavior of eighteen to twenty-four year-old males. They find a positive effect of own marriage on the labor force participation rates of eighteen to twenty-four year-old males. whether or not they were enrolled in school, and a generally negative effect of the presence of both parents on the labor force participation of the fourteen to seventeen year-olds.[12] These effects emerged even with controls for economic circumstances and other demographic characteristics. Thus, their work suggests that family status and living arrangements of youth do exert independent effects on their labor force behavior.

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[5] Glick and Norton, op. cit., p. 28.

[6] Brofenbrenner, Urie, "The Changing American Family," The American Federalist, February 1977, p. 9.

[7] Glick and Norton, op. cit., p. 28.

[8] Brofenbrenner, op. cit., p. 8.

[9] Brofenbrenner, op. cit., p. 8.

[10] Brofenbrenner (p. 8) states that the trend toward one-parent households has been most rapid for children under six. And Glick and Norton (1977) predict that as many as 45% of all children born in 1977 will "live for a period of at least several months as members of a one-parent family" (p. 29).

There are, however, many problems with this analysis. To begin with, the effects of coming from a broken home are examined only for very young adults (aged fourteen to seventeen) living in the parental home. These effects may not be generalizable to all young adults.

Effects of own living arrangements receive only cursory treatment through the analysis of the effects of marital status. And a major subgroup of young adults is not included in this analysis--eighteen to twenty-four year-old females. Additionally, labor force behavior is primarily measured in terms of labor force participation rates; hours worked are not analyzed in detail. One of their findings suggests that this could, indeed, be a major omission. When they do look at both hours worked and labor force participation rates, they find that among males aged eighteen to twenty-four enrolled in school, those who are married registered higher labor force participation rates but fewer hours worked than did those who were single and living at home.

Consequently, this analysis leaves many questions concerning effects of family status and living arrangements on labor force behavior unanswered. To boot, it is a cross-sectional analysis, looking at differences across individuals. If characteristics associated with the likelihood of an individual falling into a particular category of family status are not adequately controlled, then the findings of such analysis can be misleading.

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[11] William G. Bowen and Aldrich T. Finegan, The Economics of Labor Force Participation (Princeton: Princeton University Press, 1969).

[12] Effects of presence of both parents varied by sex and school enrollment. Of the fourteen to seventeen year-olds in school, the effect was more strongly negative for females than males. Of the fourteen to seventeen year-olds not in school, the effect was quite large and negative for males but nonexistent for females.

Duncan, Featherman, and Duncan (1972) touch on effects of parental family stability with respect to something closely related to labor force behavior--socioeconomic status of the current occupation.[13] Their work suggests that coming from a parental family with both parents present versus from a female-headed parental family has a small positive effect on the occupational status of twenty-five to sixty-four year-old males, independent of other socioeconomic background factors. Although the age-group analyzed has already passed the young adult stage, this effect could, at least in part, be the result of differential labor force behavior during youth.

Work with the Parnes' panels of young men and women suggests that changes in marital status affect the labor supply decisions of young males and females in different ways. Kohen and Parnes (1971) find that over a two-year period there was no substantial effect of a change in marital status on labor force participation rates of young men.[14] Roderick and Kohen (1973) find substantial effects of changes in marital status over a two-year period on the labor force participation of young women; over the observation period young women who married were much more likely than those who did not marry to decrease their labor force participation, and white women who divorced were more likely than

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13. O.D. Duncan, D.L. Featherman, and B. Duncan. Socioeconomic Background and Achievements (New York: Seminar Press, 1972).

14. Andrew I. Kohen and Herbert S. Parnes. Career Thresholds: A Longitudinal Study of the Educational and Labor Market Experience of Male Youth, Vol. 3 (Columbus, Ohio: Center for Human Resource Research, The Ohio State University, 1971), pp. 38-41.

others to increase their participation.[15] These analyses, however, concentrated only on marital status rather than the wider range of possible living arrangements, and they omit many potentially relevant controls, such as number of own children and socioeconomic background.

The above literature on family status and labor force patterns of youth treats the relationship as one-way, with changes in family status affecting labor supply but not the reverse. With some types of changes in family status, such as parental divorce, this seems a plausible approach. However, it is not entirely satisfactory for many other types of changes in family status. Changes in the young adult's own living arrangements are probably interrelated with labor supply in a more complex fashion, affecting the labor supply decision but also being affected by it. A sufficiently high amount of earnings may be required for some to afford living alone or with a spouse. This argues for analyzing the relationship between own living arrangement and labor supply in a simultaneous framework. Given the constraints of present data sources this currently can be accomplished only with the use of statistical techniques such as two-stage least squares.

This method was used by Hill (1977) in studying the interrelation between youth's decisions to split off from their parents, marry, attend school, and work full time.[16] In this study Hill found strong positive correlations between working full time and both splitting-off and marriage for males and weak correlations between working full time and these other actions for females. The two-stage least squares analysis of the interrelations, however, proved unsatisfactory. This work failed to yield clear implications, in part because of the problems associated with the use of this technique with behavioral models for using microdata. Two-stage least squares, in effect, employs instrumental variables to alleviate the problem of correlation between regressors and the error term. As pointed out by Wonnacott and Wonnacott (1970), an effective instrumental variable must be both highly correlated with the regressor causing the problem and not directly an explanation of the dependent variable (and thus not correlated with its error term).[17] The task of finding such instrumental variables in behavioral models using microdata is awesome. It is difficult to find a measured variable which satisfies one of the two requirements, much less both. At the individual level, variables which affect one decision in an interrelated decision matrix may plausibly affect the other decisions as well. Also, microdata do not yield the high correlations between variables which are characteristic of aggregate data.

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[15] Rodger D. Roderick and Andrew I. Kohen. Years for Decision: A Longitudinal Study of the Educational and Labor Market Experience of Young Women, (Columbus, Ohio: Center for Human Resource Research, The Ohio State University, 1973), pp. 24-27.

[16] Martha S. Hill, "The Decision by Young Adults to Split-off from Their Parents' Households," PhD dissertation, University of Michigan 1977.

This argues for collecting data which specifically ask individuals about the interrelation between such decisions as labor supply and own living arrangement. Such data are not currently available. Thus, although recognizing the inadequacies of a one-way analysis of the relationship, this paper will be confined to that approach.

THEORETICAL FRAMEWORK

Currently, there is no well-developed theory on the labor supply responses of young adults to changes in family status. However, recent developments in the theory of the labor supply decisions of married women address some effects of changing household structure on labor supply. Therefore, this section will attempt to draw upon aspects of these developments which are applicable to youth.

Recent models of the labor supply decisions of married women, such as those of Becker,[18] Willis,[19] Gronau,[20] and Gramm[21] are based on the notion that a wife's labor supply is determined in conjunction with other household-related decisions in the process of maximizing household utility. Household utility is a function of commodities produced by the household by combining goods purchased in the market with the home time inputs of the household members. The nature of the utility function is determined by the preferences of all household members as evaluated by the husband and wife, who make the household decisions. The nature of the household production function is determined by the state of the household's technology, just as a firm's production function is determined by the state of available production technology. In maximizing the household utility function, household members are constrained by household income and their time, which can be allocated between market uses and home uses. In applying this model to married women, economists have standardly treated the income of household members other than the wife as exogenously determined and assumed that the home time of members other than the wife is unproductive. From these assumptions, economists have been able to draw implications concerning the reservation wage of a married woman and consequently her labor supply. The reservation wage is defined as the minimum wage a person must be able to obtain in the market which makes it worthwhile to take a job. Mathematically this can be expressed as the ratio of the marginal utility product of home time to the marginal utility product of income in terms of market goods, evaluated at zero hours of market work. When the wife's reservation wage is less than or equal to her market wage, then household utility is maximized by her working in the labor market. *Ceteris paribus*, factors which increase the marginal utility product of her home time decrease her likelihood of working in the labor market, whereas factors which increase the marginal utility product of market goods increase the likelihood of her working in the labor market.

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[17] R. Wonnacott and T. Wonnacott, Econometrics (New York: J. Wiley, 1970), pp. 150-60.

[18] Gary S. Becker, "A Theory of the Allocation of Time," Economic Journal (September 1965), pp. 493-517.

[19] Robert J. Willis, "A New Approach to the Economic Theory of Fertility Behavior," Journal of Political Economy, (March/April 1973), pp. S14-S64.

[20] Reuben Gronau, "The Effect of Children on the Housewife's Value of Time," Journal of Political Economy (March/April 1973, pp. S168-S199.

[21] Wendy Lee Gramm, "Household Utility Maximization and the Working Wife," American Economic Review (March 1975), pp. 90-100.

Some insight into the labor supply decisions of young adults may be gained by adapting this general framework. In this model, the young adult will be assumed to maximize a utility function as he or she perceives it. Unlike the model for married women, this utility function is assumed to be based on the individual's evaluation of the preferences of the household members rather than on the parents' evaluation. Since parents and their children who are in transition to adulthood are likely to have different sets of preferences, the young adult's evaluation of parents' preferences would no doubt differ from their actual preferences. Thus, the utility function being maximized by a young adult in his/her parents' household is not necessarily identical to the parents' household utility function.

The young adult's utility function is assumed to depend on the household production of commodities, Z, which in turn are a function of time and market inputs of the household members. Both the young adult's age,. a, and living arrangement, LA, will be assumed to affect the household production technology. The living arrangement will also be assumed to affect the amount of time and goods inputs of the other household members, which the young adult takes as given but are subject to exogenous change. In maximizing his or her utility function, the young adult is constrained by both own income and time, with time to be allocated between market and home uses.

This problem can be stated as:

(1) Maximize $U(Z)$

subject to: $Z = g(X_i, H_i, Xo, Ho, a, LA)$

$$\omega_i(T_i - H_i) + M - p_i X_i = 0$$

$$T_i - H_i \geq 0$$

where X_i is market goods purchased by the young adult,

H_i is home time input of the young adult,

Xo is market goods purchased by other household members,

Ho is home time input of the other household members,

ω_i is the young adult's market wage,

T_i is total time of the young adult,

M is nonlabor income of the young adult,

P_i is the vector of prices.

The living arrangement of a young adult can undergo many changes. Here we will concentrate on five major types of changes: (1) the movement out of the parental household to a one-person household; (2) the movement, instead, to a married household; (3) the movement to a married household with children; (4) the movement to an unmarried household with children, and (5) the loss of one of two parents. Each of these changes involves the loss and in some cases the gain of household members, so each affects the amount of X_0 and H_0 in the household and the household's production technology.

In the case of movement out of the parental household to a one-person household, the young adult tends to undergo a loss of both the market goods and time of the other members of the parental household, predominantly of the parents. And, no doubt, the household's technology changes. Movement out of a family to live alone places greater reliance of the young adult on his or her market work to provide market goods and greater reliance on own home time to produce household characteristics. However, since certain market goods, such as food, clothing, and shelter, are necessary for survival, it seems likely that the young adult would reach a new equilibrium in the one-person household that entailed, at zero hours of market work, a higher marginal utility product of market goods relative to the marginal utility product of home time than in the parental household. If so, this would mean a lower reservation wage and consequently a greater likelihood of working.

In the case of movement out of the parental household to live with a spouse, the situation is further complicated by the addition of another adult. If the spouse decides to specialize relatively more in market production than in home production, most typically the case with husbands, then it seems likely that the young adult would reach a new equilibrium that entailed, at zero hours of market work, a lower marginal utility product of market goods relative to the marginal utility of home time than in the case of the one-person household. If the spouse decides to specialize relatively more in home production than in market production, the stereotypical case with wives, then it seems likely that the young adult would reach a new equilibrium that entailed, at zero hours of market work, a higher marginal utility product of market goods relative to the marginal utility of home time than in the case of the one-person household. If this is so, then young males who marry would tend to have lower reservation wages than young males who form one-person households and, consequently, would be even more likely to work. Young females who marry would tend to have higher reservation wages than young females who form one-person households, and consequently would be less likely to work.

It is not unlikely that having children would tend to accentuate the degree of market/home specialization of both spouses. If so, young males living with a spouse and children would tend to work more than their childless counterparts, whereas young women living with a spouse and children would tend to work less than their childless counterparts.

In the case of young adults living with children and no spouse, there is no other adult present to contribute market goods and home time to household production. There is a greater need for market goods than in one-person households, which would tend to increase labor supply, but care for the young children tends to be quite time-intensive, thus tending to decrease labor supply. If there are available sources of non-labor income with which to purchase a minimal amount of market goods, as with ADC for example, then it is likely that the labor supply of young adults with this living arrangement would fall somewhere in between that of one-person households and households containing a spouse as well as children.

A loss of a parent from the young adult's household of origin is particularly difficult to ascertain from this framework. The loss of a parent can mean the loss of income, and/or the loss of market goods and home time of that household members, depending on the given living arrangement of the young adult. Additionally, these losses can spur subsequent changes in the market/home time allocation of the remaining parent as well as changes in household technology. Such a complex of contingencies precludes clear implications for the young adult's labor supply at this time. However, the framework suggests that all changes in living arrangements partially affect the labor supply decision of youth by altering household money income relative needs, but that additional effects result from subsequent changes in home time inputs available to the household and changes in household production technology.

THE EMPIRICAL ANALYSIS

The empirical analysis will concentrate on differences in family status across individuals at a point in time, 1975, using Multiple Classification Analysis (MCA), a form of dummy variable regression.[22] Changes over time for the same individuals will also be investigated.

The data used for this work come from the Panel Study of Income Dynamics (PSID), a longitudinal study of a national sample of over 5,000 American families.[23] The PSID is well-suited to an analysis of effects of changes in family status on the labor supply of youth since it follows all members of households interviewed at the start of the study, 1968, even if they leave the households. Thus, both changes in the parental household and the formation of new households have been recorded, as has the number of hours worked by each household member.[24]

The sample used for the analysis consists of noninstitutional individuals aged sixteen to twenty-four in 1975 who were classified as a child of the household head of a PSID family in 1968, when the study began.[25] The sample is restricted to individuals who were initially children in order to ascertain parental family status and socio-economic background.[26] Young males and young females are analyzed separately since both the literature and preliminary investigation of the data indicated differential labor force behavior by sex. Small cell sizes in a variable of primary interest, own living arrangement, prevent further subdivisions of the sample.

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[22] The longitudinal analyses that will be referred to in the text used this same technique to observe the effects of changes in family status on changes in labor supply--1975 relative to 1968.

[23] The PSID oversamples poor families but weights the data to correct for this oversampling and for differential nonresponse in order to arrive at a nationally representative sample.

[24] It should be noted, however, that the PSID data are based on information provided by the household head, so information concerning other household members is not gathered directly from those individuals.

[25] Individuals in institutions are excluded from the analysis since their hours worked are not ascertained in the PSID.

[26] The longitudinal analysis that will be referred to in the text further restricts the sample to individuals not in institutions in 1968 for whom hours worked was ascertained.

For the purposes of this paper family status is identified on the basis of two variables--own living arrangement and parents' living arrangement. The variable representing own living arrangement consists of six categories: living with spouse and children, living with spouse and no children, living with children and no spouse, living alone, living with other adults, and in parental household.[27] A young adult falls into one of the first five categories only if he or she is a household head or wife as of 1975.

With respect to parental family status, this paper will be primarily concerned with whether or not the youth is from a broken home, i.e., whether or not he or she comes from a stable two-parent family. This distinction will be based on the presence of the youth's parents in the parental household between the beginning of the PSID, 1968, and the time the youth became a household head or wife or 1975, whichever came first. Since black youth are more likely than white youth to come from broken homes, there may be race differential effects of parental status. In order to investigate this possibility, parental family status will be combined with race to form a pattern variable. The parental family status/race variable will consist of four categories: same two parents present until left home/white; other/white; same two parents present until left home/non-white; other/non-white.[28]

Labor supply will be identified both on the basis of employment incidence (whether working) and volume of hours worked. An individual will be classified as working if 1974 annual hours of work equal or exceed 250 hours, and the volume of hours worked will be measured as the number of hours worked in 1974.[29]

Analysis of a dichotomous dependent variable, such as whether working, is optimally done using some maximum likelihood procedure such as logit analysis. But with proportions not too close to 1 or 0, substantial sample sizes, and categorical predictors which can handle nonlinearities more flexibly than any arbitrary transformation of the dependent variable, the remaining problems of using MCA instead are minor.[30]

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[27] The individual is classified as living with a spouse if the PSID indicates that the young adult is a head or wife and a wife is present in his or her household, as indicated by age of wife being non-zero. This does not in all cases mean that the young adult is legally married.

[28] Here, "left home" means becoming a household head or wife or 1975, whichever came first.

[29] In the PSID, annual hours worked ascertained in a given year apply to the preceding calendar year, e.g., work hours ascertained in 1975 are annual hours worked in 1974.

Control variables included in the analysis will consist of demographic, economic, and socio-economic background factors: age, education, other family income/family needs, and the county unemployment rate all as ascertained in 1975; and family income/needs, parental head's education, if parental head is a white collar worker, and if mother is working all as ascertained in 1968.[31]

As shown in Table 1, less than half of the sample of youth had formed their own households by 1975.[32] Household formation was more common among females than males, with about 45% of the females being a household head or wife in 1975 as opposed to about 35% of the males. Most of the youth who had left the parental household were living with a spouse. However, a substantial percentage, particularly of males, had formed one-person households, and a not trivial percentage of females had formed one-parent households. Those living with a spouse were almost as likely to be childless as to have children present in the household.

With respect to parents' living arrangement, although about 85% of the sample began the panel period in a two-parent household, by 1975 only 73% could be classified as coming from a stable two-parent family. As Table 2 indicates, sex differences in parents' living arrangement were very minor; however, race differences were substantial. Nonwhites were much less likely than whites to come from stable two-parent families; only about 50% of the nonwhites were from homes where the same

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[30] The remaining problems are the possible prediction of probabilities outside the 0 to 1 range and the existence of heterogeneous variance.

[31] Additional controls in the longitudinal analysis are change in the county unemployment rate and change in other family income/needs, both measured as the difference between the measure ascertained in 1975 and that ascertained in 1968. Like hours worked, these measures ascertained in a given year apply to the preceding calendar year.

[32] See Appendix Table A.2 for sample distributions with respect to change in parents' living arrangement.

TABLE 1

OWN LIVING ARRANGEMENT IN 1975 BY SEX

(Noninstitutional Individuals Aged 16-24 in 1975
Who Were in Their Parents' Households in 1968)

	Males		Females	
Own Living Arrangement in 1975	Number of Observations	Weighted Percent	Number of Observations	Weighted Percent
With Spouse and Children	146	12.9	220	19.0
With Spouse and no Children	102	9.9	142	13.5
With Children and no Spouse	4	0.3	124	4.9
Living Alone	175	13.0	108	9.2
With Other Adults	15	1.2	8	0.6
In Parental Household	908	62.6	879	52.7
TOTAL	1,350	100.0	1,481	100.0

TABLE 2

PARENTS' LIVING ARRANGEMENT, BY RACE AND SEX

(Noninstitutional Individuals Aged 16-24 in 1975
Who Were in Their Parents' Households in 1968)

	Males		Females	
Parents' Living Arrangement/Race	Number of Observations	Weighted Percent	Number of Observations	Weighted Percent
Same Two Parents Present Until Left Home/White	529	66.5	522	62.0
Other/White	145	17.8	162	19.0
Same Two Parents Present Until Left Home/Non-white	307	7.7	367	9.9
Other/Non-white	369	8.0	430	9.1
TOTAL	1,350	100.0	1,481	100.0

two parents were present during the observation period.

Of the individuals not from stable two-parent families, there were substantial differences by race as to the type of parental living arrangement. Of the whites, about 50% lost one parent during the observation period and 30% were from stable one-parent families. Of the nonwhites, about 30% lost one parent during the observation period and 60% were from stable one-parent families.[33]

Labor Supply and Own Living Arrangement

The MCA results indicate that there is a strong relationship between the living arrangements of young adults and their labor supply. Living arrangements are significant and sizably correlated with both employment incidence and mean hours worked, even with controls for basic demographic, economic, and socio-economic background factors.[34] The nature of these relations varies by sex as shown in Tables 3 and 4.

Males who have left the parental household to establish either a married household or a one-person household have much higher incidence of employment and mean hours worked than do those who are still in the parental household. Labor supply differences among young males who have formed their own households are relatively small. There is virtually

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[33] See Appendix Table A.2 for details concerning sample distributions with respect to change in parents' living arrangement.

[34] There are two potentially important measurement problems which could be associated with this finding. The first is that the respondent's relation to the youth varies with the youth's living arrangement (the respondent is the household head), and reports of youth's work hours may be lower if his/her parent is the respondent than if he/she is the actual respondent. Since mean work hours in 1974 correspond closely to change in work hours regardless of change in living arrangement, this probably is not a major problem. The other potential problem is the timing of the measurement of work hours and living arrangement. Living arrangement is measured at a point in time whereas work hours are measured over the time span of a year. The present analysis uses living arrangement in the spring of 1975 and 1974 annual work hours. Living arrangement in spring 1974 could have been used instead, but that measure would not have been satisfactory either. Identical MCA's to those presented in the paper were run with living arrangement in 1974 substituted for the 1975 measure to identify the extent of this problem. The results indicated weaker but still highly significant differences in labor supply with respect to own living arrangement, and the pattern of the relationships were similar but less pronounced.

TABLE 3

UNADJUSTED AND ADJUSTED[+] PROPORTIONS OF YOUNG ADULTS WORKING IN 1974, BY OWN LIVING ARRANGEMENT IN 1975 AND SEX

(Noninstitutional Individuals Aged 16-24 in 1975
Who Were in Their Parents' Households in 1968)

	Males		Females	
Own Living Arrangement in 1975	Unadjusted Proportion	Adjusted Proportion[+]	Unadjusted Proportion	Adjusted Proportion[+]
With Spouse and Children	.975	.861	.451	.395
With Spouse and no Children	.989	.877	.807	.692
With Children and no Spouse	1.000[a]	.702[a]	.649	.671
Living Alone	.919	.841	.949	.844
With Other Adults	.716[a]	.642[a]	1.000[a]	1.015[a]
In Parental Household	.542	.603	.446	.512
Overall Mean	.695		.556	
Standard Deviation	.461		.497	
Eta^2	.190**		.133**	
Beta^2	.071**		.073**	

[+]Adjusted for the effects of: age in 1975, education in 1975, other family income/family needs in 1974, 1974 county unemployment rate, family income/family needs in 1967, 1968 parental head's education, whether 1968 parental head was white collar worker, whether mother was working in 1968, and parents' living arrangement/race.

[a]Figure based on fewer than 20 observations.

**Significant at .01 level.

TABLE 4

UNADJUSTED AND ADJUSTED⁺ MEAN HOURS WORKED IN 1974, BY OWN LIVING ARRANGEMENT IN 1975 AND SEX

(Noninstitutional Individuals Aged 16-24 in 1975 Who Were in Their Parents' Households in 1968)

Own Living Arrangement in 1975	Males		Females	
	Unadjusted Mean	Adjusted Mean⁺	Unadjusted Mean	Adjusted Mean⁺
With Spouse and Children	1,950	1,598	577	380
With Spouse and no Children	1,846	1,600	1,149	960
With Children and no Spouse	2,373[a]	1,852[a]	802	724
Living Alone	1,536	1,310	1,491	1,287
With Other Adults	1,452[a]	1,291[a]	1,312[a]	1,263[a]
In Parental Household	584	748	452	614
Overall Mean	1,026		688	
Standard Deviation	903		760	
Eta^2	.419**		.213**	
Beta^2	.168**		.115**	

⁺Adjusted for the effects of: age in 1975, education in 1975, other family income/family needs in 1974, 1974 county unemployment rate, family income/family needs in 1967, 1968 parental head's education, whether 1968 parental head was white collar worker, whether mother was working in 1968, and parents' living arrangement/race.

[a] Figure based on fewer than 20 observations.

**Significant at .01 level.

no difference in this respect between married males with children and married males without children. However, young males in one-person households tend to work fewer hours than do young males in married households. Control variables for other demographic factors, socio-economic background, other family income/family needs, and the unemployment rate reduce the strength but do not alter the pattern of these relationships between labor supply and own living arrangement. Of these variables, age is the primary adjustment factor.[35]

Among young women, the relationships between own living arrangement and labor supply are more complex. As with males, both the employment incidence and mean hours worked are lower for individuals still in their parental household than the average for those who have formed their own households. However, female labor supply varies widely with the type of household formed, and the control factors play a more important role for females than for males. Both with and without controls, though, one result is clear--of the young females, those who form one-person households are most likely to be working and work the most hours annually. Interestingly, the labor supply of females who form one-person households is quite similar to that of males who form one-person households. Females with other living arrangements tend to work less than males with the same living arrangement, particularly if they are married.

With respect to these other living arrangements, simple unadjusted means indicate that: (1) females living with a spouse and children work as much as females still in the parental household, and (2) females living with a spouse and no children work more than females living with children and no spouse. However, females living with a spouse and children tend to be older than those still in the parental home, and age has a strong positive but declining effect on labor supply. Thus, when the females are statistically placed in otherwise similar circumstances, particularly with respect to age, these relative effects of living arrangements change.[36] Females living with a spouse and children are less likely to work and work fewer hours than their counterparts still in the parental household. So, with controls for other factors, primarily age, we find that young females living with a spouse and children have the lowest labor market supply.

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[35] MCA's were run without age as a control variable, and the results indicated relatively minor adjustments on the part of the remaining control variables.

The control variables also play a role in labor supply differences of young females living with a spouse but without children vs. those living with children and no spouse. Much of this alteration is, undoubtedly, due to the intervening effects of race. Being nonwhite as opposed to white tends to have a negative effect on labor supply (which is somewhat stronger for employment incidence than for hours worked). A proportionately larger percentage of females living with children and no spouse are nonwhite (40% opposed to 7% of those living with a spouse with no children). Thus, when females in these two groups are statistically placed in otherwise similar circumstances, we find that females living with children and no spouse are almost as likely to be working as females living with a spouse and no children, although they work fewer hours.

The relationships between change in own living arrangement and change in labor supply were also investigated using MCA analysis. Since these results were so similar to those just discussed, the tables presenting the longitudinal relationships are relegated to the appendix.[37]

Labor Supply and Parents' Living Arrangement

As indicated by Tables 5 and 6, effects of parents' living arrangement on the labor supply of most youth are relatively small. The labor supply of white males and of females is essentially unaffected by whether or not the individual is from a stable two-parent family, both in

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[36] MCA's were run without age as a control variable, and the results indicated only minor adjustments of the remaining control variables on the labor supply of these groups of females.

[37] Changes were measured as the difference between initial, as ascertained in 1968, conditions and end, as ascertained in 1975, conditions. Since the entire sample started out in the parental household and over 90% of the youth were initially nonworkers, it is not surprising that the cross-sectional differences in both own living arrangement and labor supply closely match the longitudinal changes in these conditions.

TABLE 5

UNADJUSTED AND ADJUSTED+ PROPORTIONS OF YOUNG ADULTS WORKING IN 1974, BY PARENTS' LIVING ARRANGEMENT, RACE, AND SEX

(Noninstitutional Individuals Aged 16-24 in 1975
Who Were in Their Parents' Households in 1968)

	Males		Females	
Parents' Living Arrangement/Race	Unadjusted Proportion	Adjusted Proportion+	Unadjusted Proportion	Adjusted Proportion+
Same Two Parents Present from 1968 Until Left Home/White	.724	.712	.590	.593
Other/White	.719	.725	.607	.593
Same Two Parents Present from 1968 Until Left Home/Nonwhite	.615	.646	.398	.392
Other/Nonwhite	.476	.535	.381	.403
Overall Mean	.695		.556	
Standard Deviation	.461		.497	
Eta^2	.024**		.026**	
Beta^2	.012**		.024**	
F-value for Pattern Variable as opposed to additive model	4.61*		0.12	

+Adjusted for the effects of: age in 1975, education in 1975, other family income/family needs in 1974, 1974 county unemployment rate, family income/family needs in 1967, 1968 parental head's education, whether 1968 parental head was white collar worker, whether mother was working in 1968, and own living arrangement in 1975.

*Significant at .05 level.

**Significant at .01 level.

terms of employment incidence and annual hours worked. The labor supply of black males, however, is affected by parental living arrangement.

Black males not from stable two-parent families are less likely to work and working somewhat fewer hours than those from stable two-parent families. This finding is not without importance since half of the young black males do not come from stable two-parent families. Interestingly, these effects of parental living arrangements are essentially unaffected by the control variables; the adjusted means are virtually equivalent to the unadjusted means.

Changes in Parental Living Arrangements and Labor Supply

Tables 7, 8, and 9 address the issue of whether the loss of a parent changes the labor force behavior of young adults. Consequently, the variable measuring change in parental living arrangement is defined in such a manner as to distinguish young adults from stable two-parent homes, those from stable one-parent homes, and those from where one of the two parents recently left. The remaining category on the variable is a catch-all category, for which the small sample size did not allow further distinction.

The results indicate that the loss of one parent over the panel period and prior to leaving home does not alter substantially the labor supply of young adults.[38] White youth, both males and females, were somewhat more likely to enter the work force if they lost a parent, whereas nonwhite females were somewhat less likely to enter the work force under the same circumstances. However, in terms of change in hours worked differences between youth from stable two-parent homes and those who lost one parent during the observation period were relatively small particularly when one controlled for other factors.

Other effects of change in parental living arrangements were relatively more important. Membership in the catch-all "other" category of change in parental status constrained the increase in labor supply of youth, particularly nonwhite youth. These results, however, are not subject to clear interpretation since small cell size precluded

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[38] Individuals are classified as losing a parent if two parents were present in 1968, but only one parent was later present while the youth was still a part of the household.

TABLE 6

UNADJUSTED AND ADJUSTED[+] MEAN HOURS WORKED IN 1974, BY PARENTS' LIVING ARRANGEMENT, RACE, AND SEX

(Noninstitutional Individuals Aged 16-24 in 1975
Who Were in Their Parents' Households in 1968)

	Males		Females	
Parents' Living Arrangement/Race	Unadjusted Mean	Adjusted Mean[+]	Unadjusted Mean	Adjusted Mean[+]
Same Two Parents Present from 1968 Until Left Home/White	1,068	1,067	728	725
Other/White	1,090	1,048	754	714
Same Two Parents Present from 1968 Until Left Home/Nonwhite	850	897	493	528
Other/Nonwhite	705	754	492	556
Overall Mean	1,026		688	
Standard Deviatiaon	903		760	
Eta^2	.015**		.016**	
$Beta^2$	.010**		.009*	
F-value for Pattern Variable as opposed to additive model	1.08		0.40	

[+] Adjusted for the effects of: age in 1975, education in 1975, other family income/family needs in 1974, 1974 county unemployment rate, family income/family needs in 1967, 1968 parental head's education, whether 1968 parental head was white collar worker, whether mother was working in 1968, and own living arrangement in 1975.

*Significant at .05 level.

**Significant at .01 level.

TABLE 7

UNADJUSTED AND ADJUSTED* PROPORTIONS OF YOUNG MALES CHANGING WORK STATUS, BY CHANGE IN PARENTS' LIVING ARRANGEMENT AND RACE

(Noninstitutional Males Aged 16-24 in 1975 Who Were in Their Parents' Households in 1968 and For Whom Hours Worked in 1967 Was Ascertained)

Change in Parents' Living Arrangement/Race	Entered Work Force		Left Work Force		Remained in Work Force		Remained out of Work Force	
	Unadj. Prop.	Adj. Prop.+	Unadj. Prop.	Adj. Prop.+	Unadj. Prop.	Adj. Prop.+	Unadj. Prop.	Adj. Prop.+
Same Two Parents 1968 Until Left/White	.604	.601	.003	.004	.091	.089	.301	.308
Same One Parent 1968 Until Left/White	.724	.708	.000	-.004	.090	.043	.185	.252
Lost One Parent Between 1968 and Left/White	.630	.666	.000	-.002	.035	.032	.335	.305
Other/White	.530	.524	.000	.003	.180	.166	.289	.302
Same Two Parents 1968 Until Left/Nonwhite	.537	.525	.005	.005	.076	.097	.382	.372
Same One Parent 1968 Until Left/Nonwhite	.407	.428	.000	.001	.059	.090	.533	.482
Lost One Parent Between 1968 and Left/Nonwhite	.590	.526	.000	.001	.027	.116	.383	.356
Other/Nonwhite	.243	.339	.000	.004	.000	.009	.757	.650
Overall Mean	.590		.003		.084		.324	
Standard Deviation	.492		.050		.277		.468	
Eta^2	.020**		.001		.010		.029*	
$Beta^2$	.017		.002		.009		.015	
F-value for Pattern Variable as opposed to additive model	1.99		0.02		3.20*		3.04*	

+Adjusted for the effects of: age in 1975, education in 1975, other family income/family needs in 1974, 1974 county unemployment rate, family income/family needs in 1967, 1968 parental head's education, whether 1968 parental head was white collar worker, whether mother was working in 1968, other family income/family needs 1974-1967, county unemployment rate 1974-1967, and change in own living arrangement.

*Significant at .05 level.

**Significant at .01 level.

TABLE 8

UNADJUSTED AND ADJUSTED+ PROPORTIONS OF YOUNG FEMALES CHANGING WORK STATUS, BY CHANGE IN PARENTS' LIVING ARRANGEMENT AND RACE

(Noninstitutional Females Aged 16-24 in 1975 Who Were in Their Parents' Households in 1968 and For Whom Hours Worked in 1967 Was Ascertained)

Change in Parents' Living Arrangement/Race	Entered Work Force		Left Work Force		Remained in Work Force		Remained out of Work Force	
	Unadj. Prop.	Adj. Prop.+	Unadj. Prop.	Adj. Prop.+	Unadj. Prop.	Adj. Prop.+	Unadj. Prop.	Adj. Prop.+
Same Two Parents 1968 Until Left/White	.565	.570	.018	.017	.025	.025	.391	.388
Same One Parent 1968 Until Left/White	.676	.593	.000	.003	.019	.015	.305	.388
Lost One Parent Between 1968 and Left/White	.552	.613	.023	.021	.015	.009	.410	.356
Other/White	.562	.506	.000	-.002	.045	.078	.393	.418
Same Two Parents 1968 Until Left/Nonwhite	.389	.380	.020	.024	.012	.002	.580	.594
Same One Parent 1968 Until Left/Nonwhite	.396	.402	.000	.001	.035	.044	.569	.553
Lost One Parent Between 1968 and Left/Nonwhite	.304	.327	.000	.012	.000	.001	.696	.660
Other/Nonwhite	.262	.193	.000	.015	.000	.032	.738	.761
Overall Mean	.535		.015		.023		.427	
Standard Deviation	.499		.122		.150		.495	
Eta^2	.029**		.003		.003		.033**	
$Beta^2$	.028**		.003		.009		.030**	
F-value for Pattern Variable as opposed to additive model	0.61		1.47		0.62		0.20	

+Adjusted for the effects of: age in 1975, education in 1975, other family income/family needs in 1974, 1974 county unemployment rate, family income/family needs in 1967, 1968 parental head's education, whether 1968 parental head was white collar worker, whether mother was working in 1968, other family income/family needs 1974-1967, county unemployment rate 1974-1967, and change in own living arrangement.

**Significant at .01 level.

TABLE 9

UNADJUSTED AND ADJUSTED* MEAN CHANGE IN HOURS WORKED, BY CHANGE IN PARENTS' LIVING ARRANGEMENT, RACE AND SEX

(Noninstitutional Males Aged 16-24 in 1975
Who Were in Their Parents' Households in 1968
and For Whom Hours Worked in 1967 was Ascertained)

Change in Parents' Living Arrangement/Race	Males		Females	
	Unadjusted Mean	Adjusted Mean	Unadjusted Mean	Adjusted Mean
Same Two Parents 1968 Until Left/White	937	953	689	692
Same One Parent 1968 Until Left/White	1,119	903	914	717
Lost One Parent Between 1968 and Left/White	1,018	1,011	619	717
Other/White	856	853	633	543
Same Two Parents 1968 Until Left/Nonwhite	804	811	485	503
Same One Parent 1968 Until Left/Nonwhite	647	700	539	562
Lost One Parent Between 1968 and Left/Nonwhite	841	831	340	477
Other/Nonwhite	424	355	426	390
Overall Mean	918		657	
Standard Deviation	852		751	
Eta^2	.015		.022**	
$Beta^2$	.013		.011	
F-value for Pattern Variable as opposed to additive model	0.86		0.17	

+Adjusted for the effects of: age in 1975, education in 1975, other family income/family needs in 1974, 1974 county unemployment rate, family income/family needs in 1967, 1968 parental head's education, whether 1968 parental head was white collar worker, whether mother was working in 1968, other family income/family needs 1974-1967, county unemployment rate 1974-1967, and change in own living arrangement.

**Significant at .01 level.

subdivision of this category into distinct types of change. Effects of coming from a stable one-parent family are not as large but are more interpretable. The effects are sizable only for males and then strongest with respect to change in work status. Nonwhite males from stable one-parent families are less likely to enter the work force than are their counterparts from stable two-parent families. The reverse holds for white males. The change in work hours, however, does not differ much with respect to whether the youth is from a stable one-parent or stable two-parent family, particularly if the youth is white.

IMPLICATIONS AND NEEDS FOR FURTHER RESEARCH

Major trends in living arrangements affecting youth include: (1) a decrease in the proportion coming from two-parent families, (2) a shift away from their parents' household and marriage toward one-person or one-parent households, and (3) a shift away from marriage with children toward marriage without children.

PSID data indicate that whether or not the youth is from a stable two-parent family tends to have relatively inconsequential implications for labor supply except for nonwhite males.[39] Nonwhite males from broken homes, predominantly those from stable one-parent families, tend to work less than their counterparts from stable two-parent families. This is particularly important for young nonwhite males since about one-third of them come from stable one-parent families. Apparently the atmosphere of a one-parent home tends to deter either the desire or the ability of nonwhite male youth to work. Better data on job opportunities and attitudes of the youth are needed to uncover the source of this effect. Since several studies have found little evidence

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39. This does not correspond to the findings of Bowen and Finegan (1969), but their analysis of this effect was restricted to a younger age group (fourteen to seventeen year-olds), did not differentiate the effect by race, and used less current data.

of strong effects of attitudes on subsequent economic attainment,[40] the need is probably greatest in the area of better data concerning the access to work. The network for obtaining jobs, both in terms of search, influence, and supply, may vary extensively with the youth's background.

With respect to own living arrangement, the PSID data indicates a strong relationship with labor supply. Males who left home to form married or one-person households increased their labor supply much more than their counterparts who remained in their parents' household, with those forming one-person households working somewhat fewer hours than those forming married households. Females who left home to form one-person, one-parent, or childless married households increased their labor supply considerably more than their counterparts who either remained in their parents' households or formed married households with children. In fact, females who formed one-person households worked about as much as males in the same situation.

Implications of these findings are not clear without better understanding of the cause and effect relationship between own living arrangements and labor supply. If changes in own living arrangement cause changes in labor supply, but not the reverse, then these findings indicate that recent shifts in living arrangements may have contributed substantially to increase labor supply of youth. However, more plausibly, causality runs in both directions, with labor supply affecting and being affected by own living arrangement. This analysis did not attempt to disentangle any interrelation between these two decision areas.

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[40] See for example: Greg Duncan and Daniel Hill, "Attitudes, Behavior, and Economic Outcomes: A Structural Equations Approach," in Greg J. Duncan and James N. Morgan, Five Thousand Families--Patterns of Economic Progress III, (Ann Arbor: Institute for Social Research, 1975); James N. Morgan, "A Seven-Year Check on the Possible Effects of Attitudes, Motives and Behavior Patterns on Change in Economic Status," in G.J. Duncan and J.N. Morgan, Five Thousand American Families--Patterns of Economic Progress IV, (Ann Arbor: Institute for Social Research, 1976); Paul J. Andresani, "Internal-External Attitudes, Personal Initiative, and the Labor Market Experience of Black and White Men," Journal of Human Resources, Vol. 12 (Summer 1977); and G. J. Duncan and J.N. Morgan, "Sense of Efficacy and Changes in Economic Status--A Comment on Andresani," currently submitted to Journal of Human Resources.

Present data are not well-suited to analysis of the causal relationship between these two decisions. Various statistical methods could be used with data such as the PSID to analyze the interrelation, but these methods tend to be quite sensitive to model specification. Timing patterns with respect to the decisions could also be misleading since decisions are not necessarily executed in the same order in which they are reached. A more reliable instrument for understanding the causal relationship between living arrangement and labor supply would be a survey which directly asked youth about the interrelation. In effect, it would be a survey concerned with the economic socialization process, the process by which a young adult chosses a living arrangement and work situation.[41]

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[41] A proposal for a survey along these lines has been submitted to the National Science Foundation for review--"A Proposal For A Retrospective study of Economic Socialization" by J. N. Morgan, M. Hill, and A. Thornton: Institute for Social Research, 1977.

APPENDIX

TABLE A.1

CHANGE IN OWN LIVING ARRANGEMENT BETWEEN 1968 and 1975, BY SEX

(Noninstitutional Individuals Aged 16-24 in 1975
Who Were in Their Parents' Households in 1968
and For Whom Hours Worked in 1967 Was Ascertained)

Change in Own Living Arrangement Between 1968 and 1975	Males		Females	
	Number of Observations	Weighted Percent	Number of Observations	Weighted Percent
Left Home, Acquired Spouse, Had Children	130	11.5	203	17.8
Left Home, Acquired Spouse	92	9.5	135	13.1
Left Home, Had Children	3	0.2	114	4.5
Left Home to Live Alone	157	11.9	104	9.3
Left Home to Live With Other Adults	15	1.4	8	0.6
Did Not Leave Home	886	65.5	869	54.5
TOTAL	1,283	100.0	1,433	100.0

TABLE A.2

CHANGE IN PARENTS' LIVING ARRANGEMENT BETWEEN 1968 AND PRIOR TO THE YOUTH LEAVING HOME, BY RACE AND SEX

(Noninstitutional Individuals Aged 16-24 in 1975
Who Were in Their Parents' Households in 1968
and For Whom Hours Worked in 1967 Was Ascertained)

	Males		Females	
Change in Parents' Living Arrangement/Race	Number of Observations	Weighted Percent	Number of Observations	Weighted Percent
Same Two Parents Until Left/White	484	64.9	498	61.9
Same One Parent Until Left/White	41	5.4	61	7.2
Lost One Parent Between 1968 and Left/White	71	9.6	66	8.4
Other/White	28	3.6	28	3.4
Same Two Parents Until Left/Nonwhite	298	8.2	356	9.7
Same One Parent Until Left/Nonwhite	241	4.9	268	5.9
Lost One Parent Between 1968 and Left/Nonwhite	79	2.1	109	2.9
Other/Nonwhite	41	1.4	47	0.7
TOTAL	1,283	100.0	1,433	100.0

TABLE A.3

UNADJUSTED AND ADJUSTED[*] PROPORTIONS OF YOUNG MALES CHANGING WORK STATUS BY CHANGE IN OWN LIVING ARRANGEMENT

(Noninstitutional Males Aged 16-24 in 1975 Who Were in Their
Parents' Households in 1968
and For Whom Hours Worked in 1967 Was Ascertained)

	Entered Work Force		Left Work Force		Remained in Work Force		Remained out of Work Force	
Change in Own Living Arrangement	Unadj. Prop.	Adj. Prop.[+]	Unadj. Prop.	Adj. Prop.[+]	Unadj. Prop.	Adj. Prop.[+]	Unadj. Prop.	Adj. Prop.[+]
Left Home, Acquired Spouse, Had Children	.778	.789	.000	-.001	.192	.087	.030	.126
Left Home, Acquired Spouse	.791	.778	.001	-.002	.197	.095	.011	.129
Left Home, Had Children	1.000[a]	.977[a]	.000[a]	.006[a]	.000[a]	-.225[a]	.000[a]	.242[a]
Left Home to Live Alone	.767	.775	.018	.013	.159	.086	.055	.133
Left Home to Live With Other Adults	.507[a]	.419[a]	.000[a]	-.003[a]	.241[a]	.209[a]	.252[a]	.375[a]
Did Not Leave Home	.497	.497	.000	.002	.031	.080	.472	.420
Overall Mean	.590		.003		.083		.324	
Standard Deviation	.492		.050		.277		.468	
Eta^2	.073**		.013*		.071**		.193**	
Beta^2	.075**		.007		.005		.085**	

[+] Adjusted for the effects of: age in 1975, education in 1975, other family income/family needs in 1974, 1974 county unemployment rate, family income/family needs in 1967, 1968 parental head's education, whether 1968 parental head was white collar worker, whether mother was working in 1968, other family income/family needs 1974-1967, county unemployment rate 1974-1967, and change in parents' living arrangement/race.

[a] Figure based on fewer than 20 observations.

*Significant at .01 level.

**Significant at .05 level.

TABLE A.4

UNADJUSTED AND ADJUSTED+ PROPORTIONS OF YOUNG FEMALES CHANGING WORK STATUS BY CHANGE IN OWN LIVING ARRANGEMENT

(Noninstitutional Females Aged 16-24 in 1975 Who Were in Their
Parents' Households in 1968
and For Whom Hours Worked in 1967 Was Ascertained)

Change in Own Living Arrangement	Entered Work Force Unadj. Prop.	Entered Work Force Adj. Prop.+	Left Work Force Unadj. Prop.	Left Work Force Adj. Prop.+	Remained in Work Force Unadj. Prop.	Remained in Work Force Adj. Prop.+	Remained out of Work Force Unadj. Prop.	Remained out of Work Force Adj. Prop.+
Left Home, Acquired Spouse, Had Children	.416	.374	.058	.051	.031	.010	.495	.565
Left Home, Acquired Spouse	.773	.665	.008	.000	.053	.048	.165	.287
Left Home, Had Children	.666	.727	.000	.002	.007	-.013	.327	.285
Left Home to Live Alone	.893	.793	.000	-.011	.052	.031	.055	.187
Left Home to Live With Other Adults	.790a	.767a	.000a	-.008a	.210a	.223a	.000a	.018a
Did Not Leave Home	.442	.494	.007	.013	.007	.020	.544	.473
Overall Mean	.535		.015		.023		.427	
Standard Deviation	.499		.122		.150		.495	
Eta^2	.112**		.027**		.026**		.130**	
$Beta^2$	.064**		.023**		.020**		.059**	

+Adjusted for the effects of: age in 1975, education in 1975, other family income/family needs in 1974, 1974 county unemployment rate, family income/family needs in 1967, 1968 parental head's education, whether 1968 parental head was white collar worker, whether mother was working in 1968, other family income/family needs 1974-1967, county unemployment rate 1974-1967, and change in parents' living arrangement/race.

aFigure based on fewer than 20 observations.

**Significant at .01 level.

TABLE A.5

UNADJUSTED AND ADJUSTED+ MEAN CHANGE IN HOURS WORKED BY CHANGE IN OWN LIVING ARRANGEMENT AND SEX

(Noninstitutional Individuals Aged 16-24 in 1975
Who Were in Their Parents' Households in 1968
and For Whom Hours Worked in 1967 Were Ascertained)

	Males		Females	
Change in Own Living Arrangement	Unadjusted Mean	Adjusted Mean+	Unadjusted Mean	Adjusted Mean+
Left Home, Acquired Spouse, Had Children	1,804	1,544	534	360
Left Home, Acquired Spouse	1,761	1,574	1,115	937
Left Home, Had Children	2,368[a]	1,961[a]	785	766
Left Home to Live Alone	1,405	1,212	1,442	1,216
Left Home to Live With Other Adults	1,420[a]	1,127[a]	1,167[a]	1,087[a]
Did Not Leave Home	537	651	436	576
Overall Mean	918		657	
Standard Deviation	852		751	
Eta^2	.396**		.207**	
$Beta^2$	.200**		.107**	

+Adjusted for the effects of: age in 1975, education in 1975, other family income/family needs in 1974, 1974 county unemployment rate, family income/family needs in 1967, 1968 parental head's education, whether 1968 parental head was white collar worker, whether mother was working in 1968, other family income/family needs 1974-1967, county unemployment rate 1974-1967, and change in parents' living arrangement/race.

[a] Figure based on fewer than 20 observations.

**Significant at .01 level.

EDUCATION, OCCUPATION, AND EARNINGS

By: David O'Shea

ABSTRACT

The probability that persons of equal educational attainment will have equal incomes is very low, as Jencks and his colleagues point out. However, disaggregation of data dealing with the education-income relationship shows that, while obviously a gamble, rewards for educational attainment actually are substantial among persons who succeed in acquiring access to professional, managerial, and technical type occupations. As these latter account for about 40% of all jobs, an economic incentive model remains viable as a basis for interpreting the motivation of students to compete for, and invest in, educational attainment.

In addition, disaggregated data show that two further perspectives, or models, illuminate other aspects of the motivations linking the educational and occupational systems. A social determinist, or sociological, perspective reveals that as the level of education in the population increases, employers raise entry level educational requirements, resulting in education actually creating its own demand, pressuring young men and women to stay on in school for a continually increasing length of time. Further, a social-psychological perspective on the education-income relationship shows that, mediating between years of schooling and occupational attainment, there is the tendency for a correspondence to exist between individual talent and psychological characteristics on the one hand, and the characteristics of given occupations on the other. Data supportive of all three models - the economic incentive, sociological, and social-psychological - are presented here, and some conclusions proposed.

INTRODUCTION

In 1972 Jencks et al. created quite a furor by pointing out that, despite the conventional wisdom, the probability of persons of equal educational attainment achieving equal incomes was remarkably low. For example, for white adult males, census data show that the correlation between years of schooling and annual earnings is 0.35.[1] This tells us that years of schooling accounts for only 12% of the variance in earned income. However, controlling for the effects of family status and academic ability would reduce this to approximately 7%. The remaining 93% of unexplained variance Jencks et al. (1973) attribute to "luck."

On the face of it, these findings suggest that the pursuit of education, while no doubt of value in itself, may prove economically unrewarding. It must be emphasized, however, that the findings are based upon highly aggregated data and are reported in terms of average relationships. A more realistic picture emerges when the relevant data are disaggregated, either on the basis of specific occupational categories, or in relation to the position that persons occupy in the social structure of the economy as employers, managers, or workers. Both types of disaggregated data are presented here. They demonstrate that for about one third of the positions in the work force the returns actually are very substantial. The fact that there are such positions, and that higher education typically is a condition of access, makes investment in education at least as rational as investment in the stock market. Each contains an element of risk, but the potential rewards for those who are "lucky" serves as a major incentive.

In practice, of course, the fact that there are high economic returns to education within specific occupations is well known to the public, creating competition between social groups around the issue of equal access to educational facilities, as well as generating competition between individuals. Group competition finds contemporary expression in movements for the rights of minorities, and of women, leading to school desegregation and affirmative action programs. Competition between individuals within schools has helped bring about an alignment of the separate status structures of the occupational and educational systems. As Rehberg found from studying the progress over time of students in six New York State high schools,

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[1] Christopher Jencks, Marshall Smith, Henry Acland, Mary Jo Bane, David Cohen, Herbert Gintis, Barbara Heyns, and Stephen Michelson, Inequality, A Reassessment of the Effect of Family and Schooling in America (New York: Harper and Row, 1973).

> . . . at least as early as the ninth grade it is possible to distinguish systematically between groups of students on a wide range of variables which relate, in the short run, to their occupational attainment.[2]

Relevant variables include family status, intelligence, academic achievement, educational ambition, and self-image. Ninth graders who registered high across these variables were those students most likely to enter four-year colleges, and then proceed to professional and managerial occupations. Those ninth graders measuring low on the same variables were most likely to terminate schooling with the twelfth grade, and then take on blue collar or lower level white collar positions in the economy. Finally, the ninth graders who fell into the mid-position were most likely to enter community colleges, and then move on to employment as technicians or as aides to professionals in a variety of fields.[3]

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[2] Richard A. Rehberg, The Two-Year College Entrant: Comparisons with the High School Graduate and with the Four-Year College Entrant (Binghamton, New York: Center for Social Analysis, State University of New York at Binghamton, 1976), p. 63.

[3] Samuel Bowles and Herbert Gintis, Schooling in Capitalist America (New York: Basic Books, Inc., 1976). For Bowles and Gintis the coincidence of occupational and educational structures represents the outcome of what they call the correspondence principle. However, they over-interpret the meaning of this correspondence, arguing that it reflects not simply student, and parental, response to occupational incentives, but also the intent of dominant groups in society. The latter are alleged to influence educational policy so that the "educational system tailors the self-concepts, aspirations, and social class identifications of individuals to the requirements of the social division of labor." (p. 129) Actually, schools are notably ineffective institutions for influencing the personalities of their students. Both student attitudes and early cognitive development are largely products of pre-school experiences in the home, which even relatively intensive programs of compensatory education fail to change.

Clearly, a good deal of competition and self-selection is involved as students seek their place within the academic and social structures of their schools, and balance their backgrounds, abilities, personalities, and academic performance against parental expectations and their own career interests.

This in-school competition is biased in favor of students from higher status backgrounds, as Bowles and Gintis emphasize.[4] However, legitimating the process is the fact that lower status students with academic ability also succeed. For example, using longitudinal data on Wisconsin high school students, Sewell demonstrates that parental status of students accounts for 18% of the variance in postsecondary schooling attained.[5] When academic ability of students is added to parental status in the prediction model, the proportion of explained variance in schooling attained increases to 30%. In effect, student ability, net of parental status, uniquely explains 12% of the variance in years of schooling.

As the competition for educational attainment probably finds its strongest incentive in the potential economic rewards within the occupational structure, for the first section of this paper an economic incentive model provides the organizing perspective. Such a model does not, of course, identify all relevant factors involved in the decisions that individuals make regarding the length of time they commit to formal schooling, as becomes apparent when one looks at student motivation from other perspectives.

THEORETICAL PERSPECTIVES

Apart from the pull of monetary rewards associated with high status occupations, also operative as an incentive for schooling is the push generated by the fact that, as Collins argues,[6] education creates its own demand. The higher the educational level in the population, the higher employers set their entry requirements. These requirements then react back upon the educational supply, pressuring young people to stay in school longer, thus raising the level of education in successive age cohorts in the population. This occurs despite the fact that, as Folger and Nam point out,[7] there is little evidence of the need for increased entry level knowledge or skills in most occupations. Not surprisingly, therefore, once job entry is attained, educational background receives little additional economic reward in about two-thirds of the occupational categories used by the Bureau of the Census, as we shall see.

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[4] Ibid.

[5] William H. Sewell, "Inequality of Opportunity for Higher Education," American Sociological Review, vol. 36 (October 1971), pp. 793-809.

[6] Randall Collins, "Functional and Conflict Theories of Educational Stratification," American Sociological Review, vol. 36 (December 1971), pp. 1002-19.

Social pressure to stay in school, generated by escalating job entry requirements, falls within the purview of a social deterministic, or sociological, model of educational attainment. However, apart from the pressures accounted for by the economic incentive and sociological models, yet another source of influence upon individual educational decision making is identified by a social-psychological model. This is the influence of personal talent and interests, factors that constrain individual ambitions and career plans. As Gottfredson points out,[8] studies of the contribution of education to earnings typically concentrate upon a single dimension at both the education and income sides of the relationship. On the education side, ability is taken to be intellectual

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7. John K. Folger and Charles B. Nam, "Trends in Education in Relation to the Occupational Structure," Sociology of Education, vol. 38 (1964) pp. 19-33. For a more extended discussion of the problem of credentialling see Ronald Dore, The Diploma Disease: Education, Qualification and Development (Berkeley, Cal.: University of California Press, 1976).

8. Linda S. Gottfredson, A Multiple-Labor Market Model of Occupational Achievement (Baltimore, Md.: Center for Social Organization of Schools, Johns Hopkins University, Report No. 225, 1977.)

only, the diversity of human talents being ignored. On the earnings side, work is treated as a homogeneous activity, perhaps varying between levels of occupational status. To go beyond this limited approach, Gottfredson has analyzed education-income relationships in terms of occupations classified according to six categories developed by Holland on the basis of research in vocational psychology. These six types relate to activities preferred and competencies required in given occupations.

While the sociological model overlaps the economic one, it being difficult to separate out the relative contribution of push and pull factors to educational attainment, the social psychological model complements the economic, helping to interpret the relationship between years of schooling and subsequent earnings. Data relative to all three models are presented here, beginning with the economic model, as this has the greatest utility in accounting for educational attainment within the population.

THE ECONOMIC INCENTIVE MODEL

As longitudinal data have become available, these have made possible a series of analyses of the causal determinants of earned income. Some of the more productive studies have utilized data that were initiated with a survey of high school seniors in Wisconsin in 1957.[9] These data show that a large part of the effectiveness of education in facilitating higher earnings result from the fact that education enables people to enter higher status occupations. For example, Griffin,[10] using the Wisconsin data, regressed earnings on a number of predictor variables, including parental education, occupation, and income. To these were added characteristics of the respondents, including mental ability, years of education, and occupational status. The coefficients for each variable indicate its impact upon earnings, net of the influence of all other variables in the regression. Results show that each $1,000 of parental income is worth $112 of son's earnings. Each year of education is worth, on average, $97. Occupational status generates $15 per annum for each point on the status scale, which runs from 1 through 98. Of special interest, though, is the fact that when occupational status is removed from the regression, the earnings generated by each year of education jump from $97 to $206, an increase of 112%. Evidently a large part of the effect of education is mediated by occupational status, as becomes evident when the economic returns to education are disaggregated by types of occupation.

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[9] For details of the Wisconsin survey see William H. Sewell, Archibald O. Haller and George W. Ohlendorf, "The Educational and Early Occupational Status Attainment Process: Replication and Revision," American Sociological Review, vol. 35 (December 1970), pp. 1014-27.

[10] Larry J. Griffin, "Specification Biases in Estimates of Socioeconomic Returns to Schooling," Sociology of Education, vol. 49 (April 1976).

Disaggregating the Data

As occupational status plays a substantial mediating role between years of education attained and earned income, the occupational structure appears to be potentially the most fruitful basis in terms of which to explore the education-income relationship in more detail. There are, in fact, two approaches to the contribution of education to earnings that have promise for our purposes. Stolzenberg,[11] has analyzed economic returns to education separately for each of the 11 census categories of occupational status. Wright and Perrone have looked at education-income relations within economic classes,[12] the latter being defined by the role people play within the structure of social relationships.

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[11] Ross M. Stolzenberg, "Education, Occupation, and Wage Differences between White and Black Men," American Journal of Sociology, vol. 81 (September 1975), pp. 200-323.

[12] Erik Olin Wright and Luca Perrone, "Marxist Class Categories and Income Inequality," American Sociological Review, vol. 42 (February 1977), pp. 32-55.

Turning first to Stolzenberg's approach,[13] he separated earnings and education on the basis of data from the 1960 U.S. Census.[14] Using the data for white males, he regressed earnings on education separately for each of four age groups and ten categories of occupational status. This approach generates forty separate regression coefficients providing estimates of the effect of education upon earnings. Stolzenberg's interest in this procedure was to demonstrate marked non-linearities in the education-earnings relationship, and interaction between age and education within this relationship. The non-linearities are evident when the distribution of regression coefficients is diagrammed in Figure 1, but the most striking finding is the very large difference in economic returns to education between the highest and lowest status occupation categories.

As shown in Figure 1, returns to education between occupations came closest at the early stages of persons' careers for the earnings data gathered by the 1960 census. Even here though, for the twenty-five to thirty-four years of age group, the gap was $264 between the return of $108 for one year of schooling for clerical workers and the return of $374 for managers, officials, and proprietors. By age thirty-five to forty-four the gap had greatly widened. The return for clerical workers increased to $215, but that for managers, officials, and proprietors rose much faster, reaching $961. In this same age group the largest gap was between laborers, at $146, and professional, technical, and kindred workers, who experienced a return of $1,042.

Overall, two occupational categories that employed 27% of white

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[13] Stolzenberg, op. cit.

[14] U.S. Bureau of the Census, U.S. Census of Population: 1960. Subject Reports. Occupation by Earnings and Education, Final Report PC(2)-7B (Washington, D.C.: Government Printing Office, 1963).

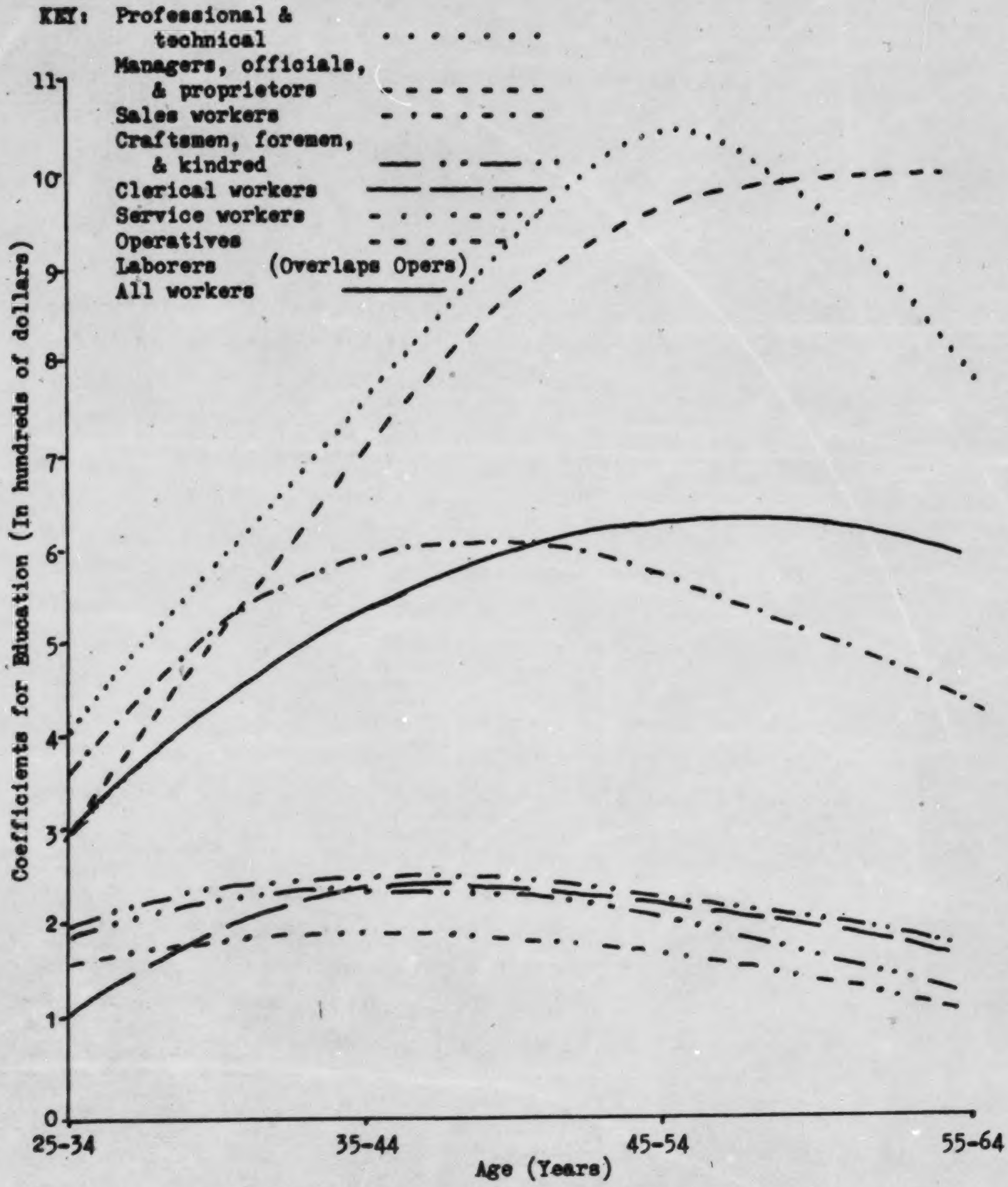

Figure 1. --Coefficients generated by regressing white males' earnings on years of school completed in 1960, by major occupation group and age. Based on data in Table 2, p.310: Ross M. Stolzenberg, "Education, Occupation, and Wage Differences between White and Black Men." American Journal of Sociology, 81 (2):299-323, 1975.

males in 1970 - professional and technical workers, managers, officials and proprietors - enjoyed extraordinarily high returns relative to all the others. Sales workers came a close third, a category employing 7.4% of males in the 1970 workforce. The balance, 66%, fell into the remaining occupational categories, among which returns were relatively low, and declined after early middle age. These data help interpret the lack of academic motivation characteristic of many students in high school who see their future as most likely falling into one of the lower status occupational categories.

Actually, of course, the magnitude of returns to schooling shown here are probably overestimated by 35-40%, according to Griffin.[15] This is the proportion of the education-income relationship that is due to the influence upon both variables of parental socioeconomic status and the individual's own mental ability. Controlling for these factors would reduce the dollar amounts and narrow the gaps somewhat, but the overall pattern would remain the same.

Stolzenberg's approach is expanded upon from a slightly different direction by Wright and Perrone.[16] These authors argue that in predicting income on the basis of education, occupational status, and age, one can add to the predictive power of the statistical model by adding data on the social class of members of the workforce.

Returns to Education by Social Class

In exploring the contribution of social class, net of occupational status, to income returns for years of schooling, Wright and Perrone take the view that occupational status and social class represent quite different, though overlapping, sets of relationships. "Occupation" designates positions within the technical

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[15] Griffin, op. cit., p. 135.

[16] Wright and Perrone, op. cit.

> division of labor, i.e., an occupation represents a set of activities fulfilling certain technically defined functions. Class, on the other hand, designates positions within the social relations of production, i.e., it designates the social relations between actors."[17]

The class typology used by Wright and Perrone is based upon three questions asked of respondents in the two surveys from which their data are derived.[18]

1. "Most of the time on the job do you work for yourself or someone else?"
2. "If you are self-employed, are there any people who work for you and are paid by you?"
3. "Do you supervise anybody as part of your job?"[19]

Using data generated by about 1,500 respondents to a national sample of adults interviewed in 1969 for a survey of working conditions, the above three questions generated five categories of social class, as illustrated in Table 1.

The survey responses also provided information on level of education and annual income, a slightly different variable from annual earnings, but closely correlated. Given these data Wright and Perrone separated respondents into the class categories of employers, managers, and workers. They omitted the petty bourgeoisie and ambiguous categories, numbers being too few. Within each class they regressed annual income on education, with the results diagrammed in Figure 2. Education is coded by level rather than by years (0 = elementary school or less; 1 = completed elementary

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[17] Ibid., p. 35.

[18] Ibid., p. 36.

[19] Ibid.

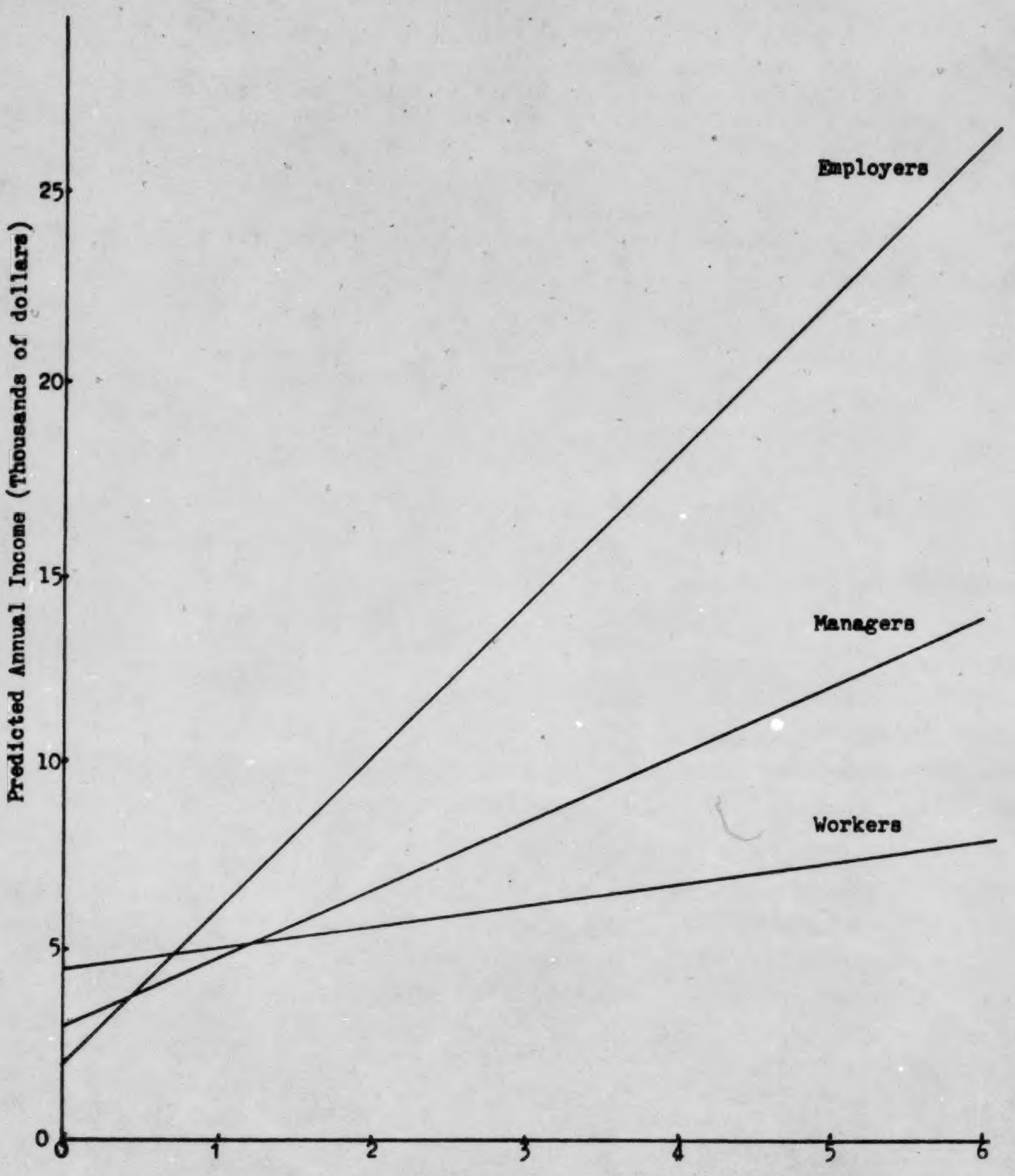

Figure 2.--Regression of income on education, by categories of social class, for nonfarm, full-time participants in the labor force. Data from a 1969 national sample of 1,533 adults, 16 years of age and over. Based upon Figure 2, p. 45; Erik Olin Wright and Luca Perrone, "Marxist Class Categories and Income Inequality." American Sociological Review. 42 (1): 32-45, 1977.

Table 1

CRITERIA FOR SOCIAL CLASS[a]

CLASS	Self-Employed	Have Employees	Have Subordinates on the Job	Employed	N	%
Employers	Yes	Yes	Yes	No	110	7.4
Managers	No	No	Yes	Yes	561	37.4
Workers	No	No	No	Yes	739	49.2
Petty Bourgeeoisie	Yes	No	No	No	65	4.3
Ambiguous	Yes	No	Yes	No	24	1.8

[a] Source: Table 3, p. 37. Wright and Perrone. See text.

school; 2 = some high school; 3 = high school; 4 = some college; 5 = college degree; 6 = postcollege). The actual regression coefficients for college within each of the class categories are:

Employers	$4,091
Managers	1,797
Workers	678

These coefficients represent the increment in income for each additional stage of education. When occupational status, age, and number of years in present job are added to education in the regression the education coefficients reduce but remain high, testifying to the independent contribution of social class, net of the other three variables including occupational status. The revised coefficients are:

Employers	$3,170
Managers	1,477
Workers	607

In terms of variance explained, education, age and occupational status were found to explain 19.1% of the variance in income. When social class was added this increased the proportion of variance explained by 7.6%, for a total of 26.7%, again indicating the substantive importance of the class variance.

The very large differences in returns to education within the three social classes as demonstrated by Wright and Perrone parallel Stolzenberg's findings presented earlier. The differences in returns to education evidently are an interactive phenomenon, resulting from characteristics of occupational settings. Economists assume that, in general, earnings are an index of the contribution of each individual to the overall productivity of the economy. Apparently, therefore, education does enhance individual productivity among employers and managers, and among persons in professional, technical, and sales occupations. In these latter occupational categories, earnings increased substantially with level of education. This is rather what one would anticipate. Not anticipated is the relatively weak impact of education upon productivity (earnings) in the remaining occupational categories, and these categories account for 60% or more of the employed labor force.

However, as noted earlier, even among occupations where education has relatively little impact upon earnings, entry is increasingly dependent upon the possession of educational credentials. The consequences of this "push" factor upon the supply of education in the labor force are reflected in changes over time in the pattern of relationship between given occupational categories and the level of education of those employed in these categories.

THE SOCIOLOGICAL MODEL

Despite low returns to education for roughly 60% of employed persons, most of whom are found in blue collar, service, and farm occupations, the level of education among this 60% has been steadily rising. It is plausible to propose, therefore, that a large, if indeterminate, proportion of this rise reflects pressure generated by increases in job entry educational requirements which, in turn, have escalated in response to the increased availability of persons with high school and post-secondary certificates. In effect, a typical vicious, or perhaps in this case beneficent, circle has been at work, an interpretation that finds some support from data regarding change over time in median levels of education within the labor force.

Between 1959 and 1972 the median years of education in the total employed labor force rose from 12 years to 12.4 years. However, within specific occupational categories, and within the black population, changes were much more dramatic. Looking first at the data for black men and women, shown in Table 2, from 1959 to 1972 black men gained by 3.4 years and black women by 2.8 years. Whites, by contrast, changed very little, and what change did occur represents a convergence of both men and women to the same level of 12.5 years. In fact, the overall pattern of change suggests a convergence within all sectors of the population, rather than a tendency toward continued upward movement over time.

TABLE 2

MEDIAN YEARS OF EDUCATION COMPLETED AMONG CIVILIAN LABOR FORCE, BY SEX AND COLOR, FOR 1959 and 1972 (ALL OCCUPATION GROUPS)[a]

Color	Sex	1959	1972	Change 1959-1972
White	Male	12.0	12.5	0.5
	Female	12.3	12.5	0.3
Black	Male	8.2	11.6	3.4
	Female	9.4	12.2	2.8

[a] Source: Table B-42, p. 181. Manpower Report of the President, 1973. U.S. Dept. of Labor.

This trend toward a stable upper limit appears also when one looks at change within specific occupational categories. These changes, as experienced by white males, are diagrammed in Figure 3. Occupational categories within which median years of education were lowest in 1959 experienced the largest gains by 1972. Farmers, farm laborers, and nonfarm laborers moved up 2.5 years. Service workers gained by 2 years. These latter four occupational categories together accounted for 17.5% of the forty-three million white males employed in 1970. Overall, 40.5% of employed males fell into the blue collar occupations, among which the median years of education rose 1.2 years for craftsmen, and for operatives 1.8 years. The remaining occupational categories, all in white collar sectors, experienced little change over the thirteen year period, having begun at or above the 12.5 years mark in 1959.

These data for white males suggest three trends. First, occupations in the highest status category, professional and technical workers, are distinctive in their very high median years of education, which has remained at over 16 years since 1959. Second, the median years of education in managerial, administrative and sales occupations has been moving slowly toward 13 years. Thirdly, all other occupational categories are converging over time with the median for clerical work, which was 12.6 years in 1972, almost unchanged from 12.5 years in 1959. As these latter categories account for two-thirds of all employed males, their educational levels strongly influence the aggregate median, and as we saw earlier, there is little economic incentive for persons to go beyond high school if they enter clerical or blue collar jobs, income returns to education in these jobs being minimal. By contrast, returns to education in the higher level professional and managerial positions are substantial.

Though not presented here, the pattern of change in median years of education for white women is very similar to that for men,

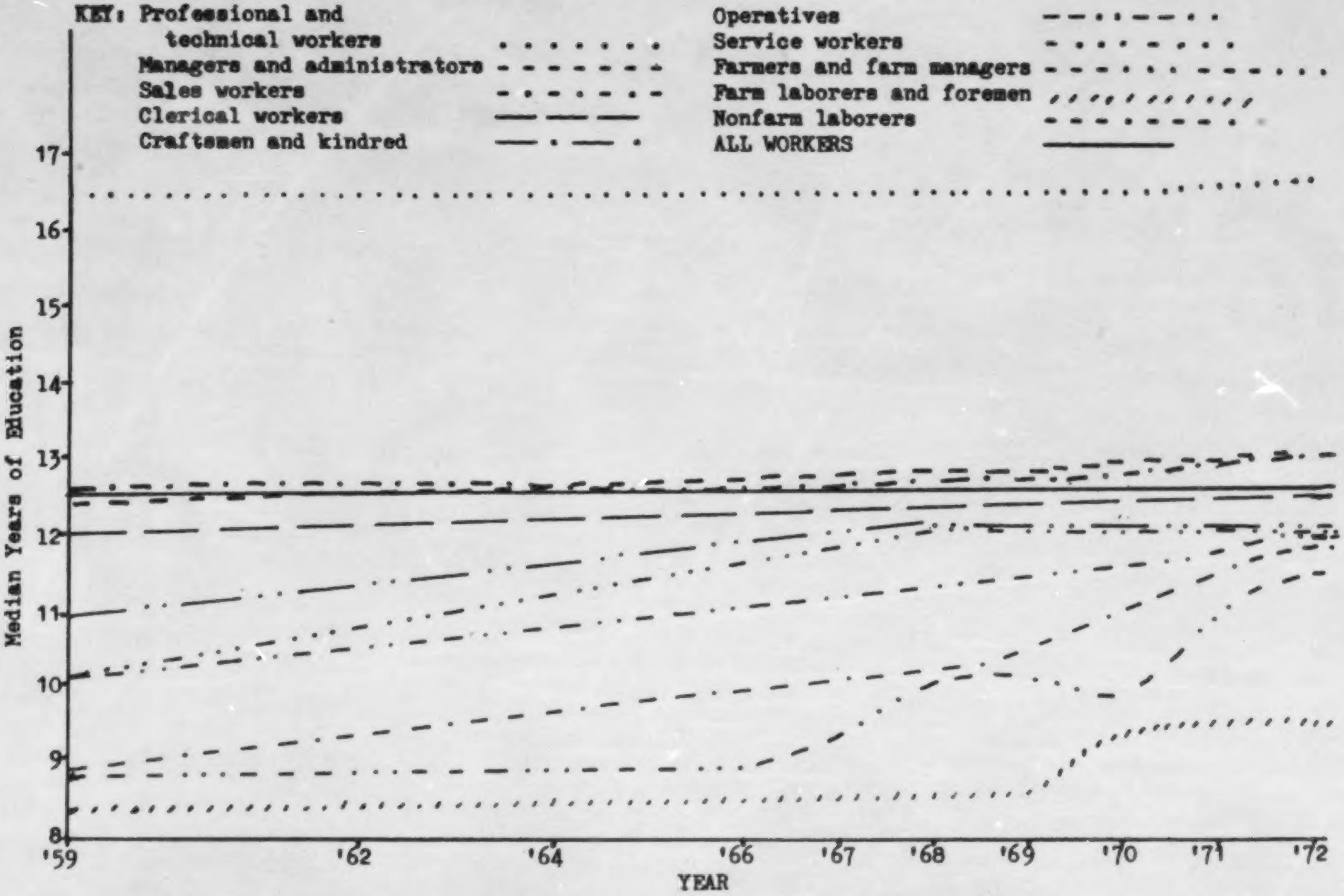

Figure 3. - - Changes from 1959 to 1972 in median years of school completed by males in the employed civilian labor force, by census categories of occupations. Data from Table B-12, p. 181, Manpower Report of the President, 1973. U.S. Dept. of Labor.

while their respective distributions between occupations differ. Women are concentrated in clerical rather than blue collar work. Among blacks, though overall there was a large increase in education, this was not true of those in occupational categories where the black median already was close to the white level in 1959. Specifically, black professional and technical workers had a median of 16 years of education in 1959 and in 1972, and black clerical and sales workers were close to 12.5 years at both times. The large changes in levels of education between 1959 and 1972 among blacks, as among whites, occurred not in the higher status occupations but in the blue collar, service, and farm categories.

In interpreting these data on change over time, referring back to Figures 1 and 2, one can argue that if increased educational levels within many occupational categories results from actual job needs for higher levels of pre-training, this fact would be reflected in a substantially stronger relationship between education and earnings than presently exists. The more parsimonious interpretation is that demand for educational requirements goes up as the supply of educated manpower increases.

Further insight into factors associated with differences in returns to education is provided by Gottfredson's work.[20] In this she explores the possibility that psychological factors orient individual job choices, thus mediating between level of education and occupational status, and therefore influencing the education-earnings relationship. Gottfredson's approach calls for a more complex view of the nature of the labor market. The latter is conceived of as being divided into multiple sectors, each sector attracting persons with distinctive talents and interests.

THE SOCIAL-PSYCHOLOGICAL MODEL

Gottfredson argues that education is rewarded differently between occupations in part because occupations vary considerably in the extent to which academic preparation has actual utility, even though required for entry. Some occupations

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[20] Gottfredson, op. cit.

> "require skills primarily for working with people, whereas others require skill for working with data or things. We might expect that schools do not foster all the types of talent that are important in the occupational world. In turn, we would not expect education to be as valuable in the lines of work that require non-academic talent."[21]

To explore these possibilities, Gottfredson classifies occupations by means of a typology developed by John Holland on the basis of research in vocational psychology. Holland allocates occupations into six types according to the activities performed and the competencies required. These types are labelled realistic, investigative, artistic, social, enterprising, and conventional. By way of examples, sales and management jobs would be in the enterprising category; science and medicine in the investigative; clerical work and accounting in the conventional; blue collar jobs and engineering in the realistic, and education and social service in the social.

Holland assumes that education contributes differently to worker productivity within each of his six types, an assumption that can be tested by adding the types to the usual statistical model for predicting income on the basis of education and occupational status. Gottfredson has done this, using a 1/1000 sample developed by the 1970 census of white males in the full time civilian, nonfarm, labor force.[22] The sample size was 27,067. The data from the sample were used to predict income on the basis of years of education, weeks worked in 1969, hours worked during the survey week, and occupational prestige. These variables explained 25.4% of the variance in income. Adding dummy variables for the Holland types increases the variance explained to 31.1%, a substantial proportionate increase.

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[21] Linda S. Gottfredson, "Differential Educational Payoff Models and Theories of the Diversity of Human Talents," in James M. McPartland and Edward L. McDill, organizers, Alternative Research Perspectives on the Effects of School Organization and Social Contexts (Baltimore, Md.; Center for Social Organization of Schools, Johns Hopkins University, Report No. 234, 1977), pp. 1-2.

Insight into the actual pattern of differences between Holland's types in terms of income returns to education is provided by diagramming these, as in Figure 4. Gottfredson generated these data simply by regressing income on education. The lines shown in Figure 4 join the computed regression coefficients for education generated by running the regression equation separately for each of four age groups, and the six types of occupations. Among the types, enterprising occupations obviously incorporate the jobs having the highest returns to education. This category overlaps the census classifications of sales, managers, officials, and proprietors, that register high in Stolzenberg's analysis, and the manager and employer categories used by Wright and Perrone. As shown in Table 3, about one quarter of all employed men, aged thirty-six to forty-five, fall within the enterprising type. Reflecting the technological character of our society, the realistic type incorporates the jobs held by more than half of all employed men.

With the realistic and enterprising occupations accounting together for 80% of men in the sample, the remaining 20% are distributed between the investigative, social, conventional, and artistic types.

Educational characteristics of men within the six occupational types are suggestive of the pattern of linkages to the educational system. Looking at the third column of Table 3, one can see the

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[22] Gottfredson, A Multiple-Labor Market Model, op. cit.

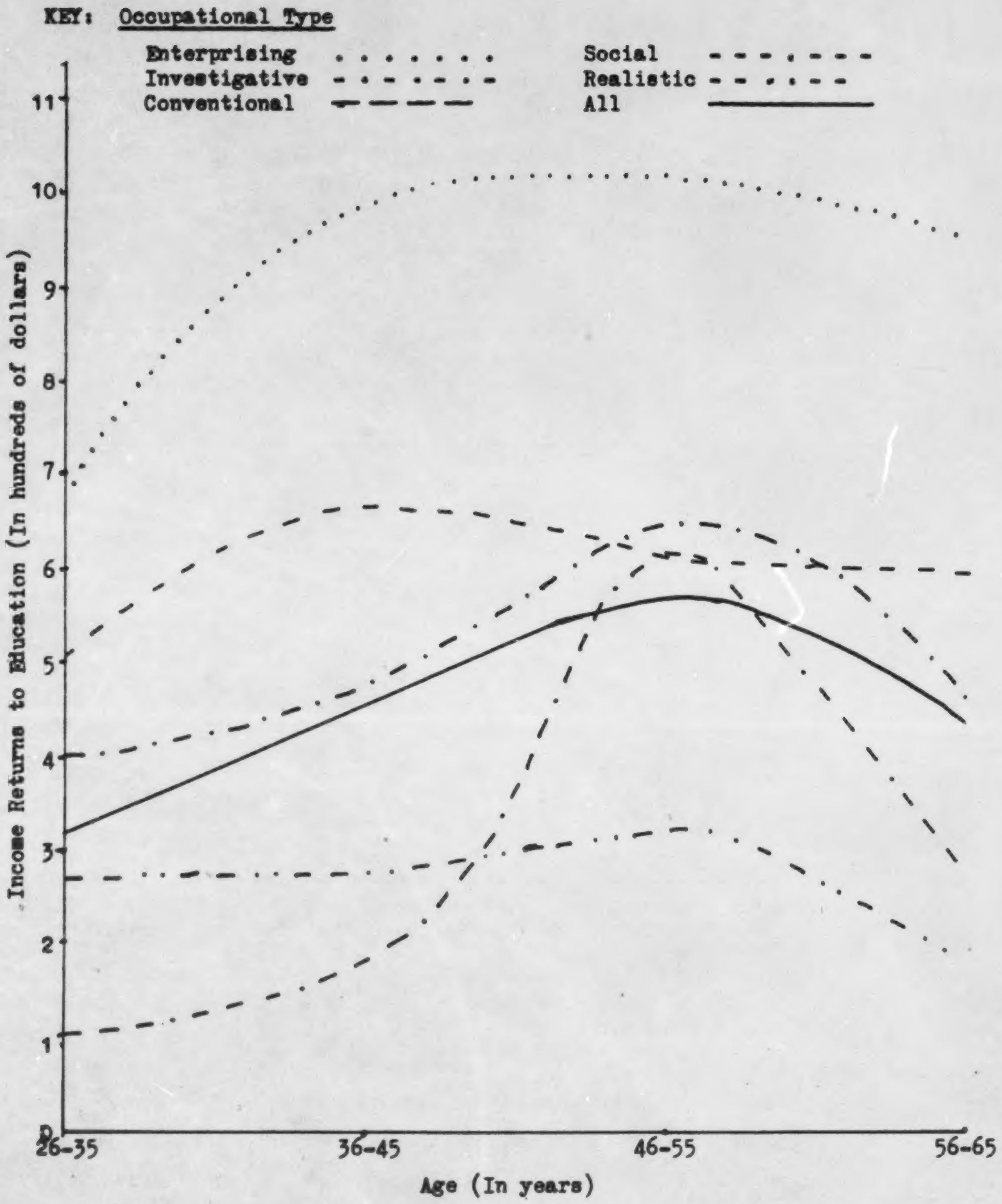

Figure 4.-- Coefficients for education from regressing income on education, for men in full-time, civilian, nonfarm occupations, by age. Derived from Table 7, p. 43: Linda Gottfredson, A Multiple-Labor Market Model of Occupational Achievement. Baltimore, Md., Center for Social Organization of Schools, Johns Hopkins University. Report No. 225, 1977.

TABLE 3

DISTRIBUTION OF WHITE MALES IN CIVILIAN, NONFARM, LABOR FORCE IN 1970, AGED 36-65, BY TYPE OF OCCUPATION, AND BY PERCENT OF ALL EMPLOYED MALES HAVING 16 OR MORE YEARS OF EDUCATION BETWEEN AND WITHIN TYPES OF OCCUPATION[a]

Type of Occupation	Employed males	Percent men with 16 or more years education between types	Percent men with 16 or more years education within types
Realistic	53.8	10.2	3.1
Enterprising	25.6	38.6	24.7
Investigative	7.4	20.8	45.1
Social	5.8	19.2	54.2
Conventional	5.8	7.2	20.3
Artistic	1.6	4.0	55.8
Total	100.0	100.0	---
N	19,286	3,164	---

[a] Source: Adapted from data provided in Table 8, p. 44, Linda S. Gottfredson. A Multiple-Labor Market Model of Occupational Achievement. (See text).

proportion of men within each type that possess sixteen or more years of education; in effect, the proportion of college graduates. Three types come close to 50%: the investigative, social and artistic. The investigative and social have large proportions of scientists, university faculty members, teachers and social workers, all of which are jobs that require a higher education. However, among all persons in the sample who have college degrees, the largest single concentration is within the enterprising type occupations, as shown in column 2 of Table 3, the type also that provides the highest economic returns to education. Presumably the relationship is not coincidental.

Realistic occupations, with the lowest returns to education, attract 10.2% of all college graduates in the sample, though of all men in realistic occupations only 3.1% are college graduates, as shown in column 3 of Table 3. Most of these probably are engineers. The educational disparity between the enterprising and realistic occupations is further emphasized if one looks at the proportions of men in each who terminated schooling at the twelfth grade, or below. Among all men in the sample the proportion is 72%. For the enterprising type occupations the proportion falls to 56%, but rises to 90% for those in the realistic category. Associated with these differences in educational levels, and returns to education, are parallel differences in mean income. In 1969, for men aged thirty-six to forty-five, those in realistic occupations had a mean income of $8,992 compared to $14,346 for those in the enterprising category.

From the point of view of the educational system, the low returns to education in realistic occupations is a serious issue, given the number of people involved. In 1970 the realistic category accounted for close to 54% of all white employed men, and 80% among blacks. Students who find themselves poorly fitted, or unmotivated, to pursue postsecondary education, and who perceive their future as being in a realistic type occupation, are not being unreasonable when they argue that education, at least beyond the twelfth grade, is not particularly relevant for them. To transform the motivational climate among such students would require a transformation of the structure of rewards for education in realistic occupations, though how this could be done for jobs in which academic training adds little to individual productivity is difficult to fathom.

The typical alternative of providing vocational training is of doubtful value in the context of lifetime careers, though it may be useful as a means of keeping some students occupied while they are in school. A compromise might be to accept the fact that half the jobs in society are unlikely to reward academic training beyond that required to meet minimum levels of educational certification: then, proceed to explore opportunities for students to achieve status, if not always income, outside their regular occupations. In effect, one would aim to legitimate the notion that education should prepare for leisure as much as for work. More emphasis could be placed upon music, art, and crafts, expanding greatly the existing extra-curriculum, within which athletics provides an excellent model.

Of course, in the case of black men and women, and of white women, there is need for substantial changes within the existing occupational structure. The problem here is one of redistributing people between occupations. Within categories of occupations, as both Stolzenberg and Gottfredson report,[23] returns to education for blacks are less than for whites. Gottfredson,[24] and also Wright and Perrone,[25] found the same to be true for women. Further analysis, by Stolzenberg for blacks,[26] and by Gottfredson for both blacks and women,[27] indicates that the source of the differential returns, as well as lower incomes, is not discrimination in salary policies so much as differential patterns of recruitment. Within a given occupational status level, or social class level, blacks and women receive positions in the lower paying jobs within that category. In terms of occupational types, Gottfredson found black males concentrated in the realistic category, and women in the social and conventional categories. Over time, the combination of affirmative action programs and changed socialization patterns, especially regarding sex role stereotypes, should generate more balance in the distributional patterns of blacks, women, and minorities generally, across occupations.

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[23] Gottfredson, Ibid., Stolzenberg, op. cit.

[24] Gottfredson, Ibid.

[25] Wright and Perrone, op. cit.

[26] Stolzenberg, op. cit.

[27] Gottfredson, A Multiple-Labor Market Model, op. cit.

CONCLUSIONS

In summary, while the overall contribution of education to earnings is low relative to the contribution it makes to the attainment of occupational positions, disaggregation of the data in terms of categories of occupations reveals that for about one-third of all jobs the economic returns actually are rather high. This finding reinforces the traditional viewpoint of economists that the potential of financial returns to education is a major incentive for students, and that this incentive is one of the more important processes linking education and work.[28] Given the likely returns, both students and their parents demand schools as a resource in the competition for occupational status and earnings.

This, then, is the situation in general. Clearly, there are particular instances of distortions in the competitive process, and these are most visible in the case of minorities and of women.

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[28] For summary discussion of the economics of education see Mary Jean Bowman, "The Human Investment Revolution in Economic Thought," Sociology of Education, vol. 39 (Spring 1966), pp. 111-37. For a more detailed approach to the disaggregation of education-income relationships than presented in this paper see Richard S. Eckhaus, Estimating the Returns to Education: A Disaggregated Approach (Berkeley, Cal.: The Carnegie Commission on Higher Education, 1973). Among other things, Eckhaus finds that if one uses hourly earnings rather than annual earnings as the dependent variable, returns to education for professions come much closer to the returns for nonprofessionals, the latter typically putting in less hours per week in their occupations.

Resolution of these distortions, which inhibit persons entering occupations commensurate with their level of education, requires continuation of affirmative action programs. Ultimately, equalizing access to the occupational structure is likely to be the most effective way of equalizing educational attainment between groups in society, at least to the extent that attainment really is a response to occupationally based incentives.

The most troubling finding, of course, is that while education pays off in a sufficiently high proportion of jobs to create powerful incentives among students to compete for these positions, thus raising the general level of education in the population as a sort of spillover effect, a majority of students eventually arrive in jobs for which returns to education are minimal. Given this, it would seem worthwhile to explore ways in which students might also be trained in nonacademic skills which would be serviceable for their personal development, if not their economic progress.

A related issue, of course, is the question of student motivation to acquire an education. Economic incentives and the ambition to develop personal talents no doubt are dominant, and complementary, influences. The major problem lies with those students who respond to neither of these influences, but are carried along within the educational system by social pressures that demand the acquisition of educational credentials. As the source of this problem is within the occupational rather than the educational system, more research is required regarding the conditions under which formal education really does, or does not, contribute toward job performance.

Finally, to complete the picture of education-work relations we not only need to pursue in more detail the analysis of the occupational structure and its linkages to various levels and types of education. Also necessary are data on the reverse of the occupational structure-- the structure of individual careers within and across occupations. As Spilerman notes,[29] education "provides status and earnings rewards through facilitating access to valued career lines, through differentiation among entrants with respect to rate of advancement, or through a combination of both." Career analysis can help reveal the actual processes through which education enhances individual productivity and earnings. Such analysis also has potential for a more detailed understanding of unemployment, helping to specify the conditions under which people with different background characteristics, and in different occupations, enter and exit the occupational structure. Unemployment, like education, takes its meaning from the structure of employment, and ultimately can only be dealt with in terms of its consequences for the labor market as a whole.

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[29] Seymour Spilerman, "Careers, Labor Market Structure, and Socioeconomic Achievement," American Journal of Sociology, vol. 83 (November 1977), p. 585.

ALIENATION AND ADJUSTMENT TO LIMITED PROSPECTS

By: David Gottlieb

ABSTRACT

This paper seeks to provide information with regard to matters of alienation and adjustment to limited prospects as experienced by disadvantaged youth. A second task is to identify the ways in which important attitudes, experiences, and behaviors of poor youth may not be reflected in current employment surveys.

An analysis of the available literature and data leads to the conclusion that very little is, in fact, known about how the young, particularly those who are poor, perceive or respond to limited opportunities. Serious question is raised as to the validity and usefulness of employment data currently being collected. Clearly, knowing the percentage of youth in the labor force or the percentage employed or not employed does not tell us very much about how youth respond to their work and job status.

Further, the available data and literature frequently treat the young as a monolith, failing to differentiate among youth of different ages, socio-economic backgrounds, race, ethnicity, sex, or place of residence. Multivariate analysis is not a characteristic of current methodologies.

Moreover, most surveys do not take into consideration that employment is a two-sided coin involving the potential employee and the potential employer. The overriding tendency is to place the burden of proof upon the potential employee by focusing upon the perceived shortcomings of the individual as opposed to the barriers established by potential employers. The data do more than suggest that failure to gain employment may be more the result of work force barriers than a lack of skill or desire on the part of the young.

Reference is also made to the existence of a dual labor market: one which consists of jobs which are considered appropriate for youth and a "regular job market" which is reserved for adults. The majority of jobs in the youth market, while perhaps functional for youth in school, summer or holiday employment, or part-time work, neither require much in the way of skills nor do they provide an opportunity for an adequate transition into the regular, adult job market.

Finally, efforts are made to identify a number of investigative areas and strategies which, if pursued, could provide systematic and empirical answers to the critical question of youth reactions and responses to perceived and real barriers.

My assignment here is twofold: first, to deal with the issue of alienation and adjustment to limited prospects as experienced by disadvantaged youth; and second, to identify the ways in which adjustment styles might or might not influence how these youth respond to employment surveys. Within the framework of our concern for youth and matters of employment, my task can be restated in the following way: "What are the behavioral and attitudinal responses of poor youth when confronted with barriers to employment?"

Unfortunately, precise answers to these questions are difficult to find. The combination of irrelevant data, inappropriate methodologies, and a lack of consensus as to the meaning of such terms as alienation and adjustment allow for little more than speculation, heady inference, and an occasional reference to scattered empirical evidence.

The problem is made all the more complex since even at this late date we have not been able to differentiate among the various youth groupings which might fall into the category of disadvantaged. I think we can all agree that poor youth are hardly a monolith. Income level alone may be an effective method for determining eligibility for entrance into training programs, but it is not an effective mechanism for identifying critical population differences. Further, despite a variety of methodological innovations and national surveys no one seems really to believe that we have a fairly precise fix on just how many youth are employed or unemployed; the factors which lead to acceptance or rejection of employment opportunities; how much of the unemployment variation among youth can be explained by their rejection of jobs as opposed to job availability or employer preference for older applicants. Although other conference participants will deal with specific problems of data collection and data validity I do want to cite several examples which help illustrate my point.

The bulk of youth-related employment data consists primarily of statistics noting the number of people in or out of the labor market, the number employed full time, part time, or unemployed. These same data are displayed in a manner which allows for comparison between white and nonwhite youth, youth of different age grouping, males and females, and those who reside in urban as opposed to rural and suburban locations. With few exceptions there is a paucity of hard data dealing with the day-to-day business of how the young negotiate relationships between themselves and their neighborhoods, communities, and society. Nor, is there very much information available as to relationships between unfulfilled job aspirations or expectations and adjustment response. Obviously all youth do not hold similar aspirations and expectations and all youth will not react in the same manner to perceived or real barriers.

Yet even when data are available, there is serious question as to accuracy or meaning. For example, when a comparison is made of youth unemployment statistics, for a similar period of time, as presented by the Current Population Survey (CPS, upon which unemployment rates are based) and a National Longitudinal Survey (NLS) significant differences are apparent. Unemployment for in-school males, ages sixteen to seventeen was reported as 17.4% by NLS and 9.2% by CPS, a difference of some nine percent. For out of school males of the same age, there is a reversal with CPS citing a figure which is nine percent greater than that reported by NLS.[1]

There are other data deficiencies which contribute to the problem. Each year 400,000 people ages eighteen to twenty-four enter the armed forces. The military absorbs roughly a third of all non-college bound youth. Most are from lower income backgrounds and a disproportionate number are nonwhite. Information as to why these youth enroll in the military is lacking. Similarly, the extent to which the military experience enhances civilian employment opportunities is not known. Nor can we say very much about the reasons why large numbers of these youth (the estimates range from 30% to 40% for the Army and Navy) leave prior to completion of the first term of service. Given that the military is frequently viewed as a magnet for those who cannot or choose not to remain in the civilian realm, it would make sense to find out

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1. Policy Options for the Teenage Unemployment Problem, Background Paper No. 13 (Washington: Congressional Budget Office, 1976), p.2.

what happens to them when they do leave the military. Assuming that there is some positive relationship between policy and data, we would have to conclude that the military has determined that the major barrier to completion of the first term of service is age and a high school diploma. Current enrollment policies specify that an applicant must be at least eighteen years of age or if seventeen he or she must possess a high school diploma or its equivalency.[2] At the same time, it is interesting to point out that there are few officials in the military who would argue that a high school diploma is an assurance of academic competency or skill. For the most part, that particular credential is viewed as evidence of "stick-to-it-ness" (or as expressed by one official, "if a kid, especially a black kid, can stick it out through high school, we figure he can take most anything").

Data deficiences are also apparent when we seek to determine answers to even the most basic questions pertaining to school enrollment and school attrition. Although the emphasis is placed upon high school completion, we know there are numerous students who do not even get as far as secondary school. A number of investigators have pointed out that school enrollment and attrition rates are frequently inflated since in many states formula funding is based upon body counts. More important, perhaps, than enrollments, few studies have focused in upon the actual role of the school in contributing to student attrition and failure.[3] For the most part, high school dropout studies have sought to explain the problem by focusing upon the characteristics of the student, his family, and his community. Little differentiation is made between those who have chosen to leave and those who have been forced to leave. Nor is there much in the way of empirical consensus as to just what role the school does play in enhancing occupational mobility; responding to the needs of students who have experienced occupational barriers; nor what there is about education other than credentials which will influence how an employer will respond to a particular youthful applicant.

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[2] First Term Enlisted Attrition. Vol. I: Papers (Washington: Navy Manpower R and D Program of the Office of Naval Research, 1977).

[3] James McPartland, Edward L. McDill, et al., Student Participation in High School Decisions, Report No. 95. (Baltimore: Johns Hopkins Center for Social Organization of Schools, 1971), p.46.

One style of adjustment to limited opportunities practiced by many disadvantaged youth has been enrollment in any one of a number of federally funded employment programs. Yet even in this case, conjecture and inference takes the upper hand over empirical data. No one can state with any degree of certainty just how many youth have been enrolled in the variety of programs, much less the number who successfully completed their training. We really do not know whether or not those who enter are representative of the most estranged of poor youth; whether they are like the majority of poor youth, or whether or not they are a very select slice of the most highly motivated of poor youth. I do know that the deck can be stacked and that in the early days of Job Corps we talked about selecting only the "cream of the crop" at least until we had achieved some acceptable level of program credibility. Aside from the selectivity question, there are serious data gaps with regard to why some youth enroll and others do not; why some remain while others depart; which program components are most likely to enhance job entry, stability, and mobility; what happens to those who leave the program; whether the critical variable is program treatment or maturity; whether those who participate in such programs do fare better than similar youth who were not program enrollees.

Youth in prison represent yet another adjustment response. Whether or not there is a positive relationship between unemployment and crime is a topic to be addressed by some other conference participant. I only seek here to make the point that youth in prison are yet one more important population for which we have little data. Whether or not the prison experience affects different youth in different ways is not a question which can be answered at this time. Nor is it possible to know the ways in which criminal and prison experiences influence employment-related behavior or problems of adjustment.

Joining with other critics, for whatever value it might be, it is appropriate once again to make the point that current methodologies utilized for the measurement of youth unemployment are not without serious limitations. To be included in the official definition of "unemployed" a person must be at least sixteen years of age, without a job, and available for and looking for work. An individual who works, however briefly, for wages during the survey week is considered "employed."

Thus, the definition of unemployment is arbitrary and it does not allow for the collecting of much information about each individual's work status or work situation. For example, a youth looking for full-time employment would not be cited as being unemployed if he or she held a part-time job of only one hour per week. Further, youth who are interested in work, but have stopped the search, for whatever the reason, are not included in the unemployment category since they are not viewed as labor force participants. The current system does not allow for a differentiation between those seeking full-time work and those seeking part-time employment. Moreover, as noted earlier, the discrepancies between NLS and CPS reports would indicate that we have yet to determine reliable sources for employment-related information.

Having been critical about the data gaps and methodological flaws, I feel compelled to say that I am not indifferent to the many problems involved in seeking out information from the young, particularly youth who are not readily accessible. The problem is further compounded by the fact that poor youth, more so than middle class youth, have difficulties in handling standard paper and pencil questionnaires and are probably somewhat more reluctant to share personal information.

The Job Corps experience can be illustrative of what can happen when the best of research-evaluation plans are tested out in the real world. Prior to the arrival of the first Job Corps enrollee an elaborate research and evaluation system had been designed and transmitted to appropriate Job Corps Center staff. Briefly, the plan called for the collection of entry data (why they came, how they heard about the program, what they expected to gain, and so forth) as well as a series of tests which would allow for some measurement of reading and math skills. The plan called, also, for a mid-training interview and retest, and a final exit interview with a third educational achievement test. In order to be able to make comparisons between enrollees and nonenrollees, we contracted for an outside firm to give similar interviews and tests to a control population. Finally, in order to show the Congress that the payoff was well worth the investment, arrangements were made for a six and twelve month follow-up of both enrollees and control group members.

I believe it is accurate to say that within fifteen minutes of the arrival of the first group of enrollees, our research-evaluation system collapsed. First, we discovered that our commitment to science was not necessarily shared by front line staff. As articulated by one center director, "I have more to do than fuck around with your stupid-assed tests." Apparently this sentiment was shared by the majority of those who had responsibility for the implementation of our research format. Enrollees were equally unenthusiastic. Many complained that such tests were just school revisited and did not have anything to do with why they came to Job Corps. Still others resented the kinds of questions which were being asked and many were more than a little apprehensive as to just how the information would be utilized. I should also point out that more than a few of the enrollees had already had wide experience with such data-collecting techniques and tests and hence were quick to note that such data were, in fact, biased. Yet another barrier to successful implementation was the fact that some enrollees arrived, took one quick look at their home to be, and promptly demanded to be returned whence they came. Needless to say, the situation seemed hardly appropriate for the pursuit of respondent based data. In any event, the mix of enrollee resistance, staff indifference, and the realities of the setting was sufficient to bring our research efforts to a virtual halt. Our outside contractor did not fare much better in attempts to assemble and study the control groups. Problems of respondent resistance mobility as well as a fear on the part of interviewers to enter certain neighborhoods all contributed to a moratorium on such ambitious research undertakings.

I recognize also that research is a costly business; that there is only so much time which can be devoted to an individual interview and hence, not all good questions can be included; that there is a growing reluctance on the part of people to participate in survey as well as other studies; and that the processes of research entry are becoming all the more difficult because of emerging freedom of information and privacy protection regulations. At the same time, I do believe that the barriers are not insurmountable and that we can do a better job in the selection of questions; the pretesting and validation of research instruments; greater eclecticism in research methodologies (a better mix between in-depth interviews and surveys); more effective use of youth as data collectors; being more sensitive to the apprehensions felt by respondents and doing more to show respondents as well as policy makers the necessity, relevance, and functional value of our research; more in the way of collaborative efforts among the various social science disciplines in both the design and analysis stages of the research; and finally, a more humble posture as we attempt to bridge the gap between our data and the problems of the real world.

I noted earlier that an important part of my assignement here is to say something about alienation as a characteristic of poor youth or as a youthful repsonse to perceived or real barriers to opportunity. Alienation is a term frequently utilized by behavioral scientists, particularly sociologists. It is a term that implies feelings of powerlessness, anonymity, estrangement, or a lack of some acceptable relationship between the individual and the institutions of the society. It is also a term which seems to be utilized in a most cavalier manner. Alienation is used as both an independent and dependent variable. Some investigators take the position that alienation contributes to failure or underachievement in academic studies, interpersonal relationships, employment, and a host of other behavioral areas. Conversely, other social scientists view alientation as being the result of failures in academic achievement, interpersonal skills, and employment goal attainment. Most sociologists and psychologists agree that there is a significant relationship between self-esteem and expressed sentiments of alienation. Disagreement arises over the question of which of the two is the contributing variable.

The term alienation has been used to explain the behavior of student activists, the women's liberation movement, past and most recent black disruptions in urban areas, juvenile and adult delinquency, and the shift to alternative life styles. It is a very popular variable or concept. A systematic review of the utilization of the term alienation would suggest that it is probably more a product of the sociological imagination than an accurate reflection of why some people behave the way they do. Whether or not alienation, no matter the criteria utilized, flows from limited prospects is not a question which can be answered fully by available data. It is true that sociologists do find a positive relationship between socio-economic status and admissions of personal powerlessness. At the same time, the research at hand would indicate that numerous other variables can and do intervene to distort this relationship. For example, Rosenberg notes that factors such as age, sex, race, and the racial composition of a school will influence how students of varying socio-economic backgrounds view themselves and their abilities to control their destinies.[4]

I do not mean to suggest that feelings of alienation are unimportant or that they are not unrelated to blocked opportunities. Rather, I am taking the position that at this point at least, we cannot say very much about the interplay between alienation and response to limited prospects. Further, there is little reason to believe that alienation is more characteristic of youth than of other age and social groups or that it is more prevalent among poor youth than among more affluent youth. Some would argue that limited prospects would, in fact generate greater adjustment problems for the middle class rather than lower class young simply because more affluent youth hold higher expectations and are under greater social pressure to achieve. What we can say is that there is a real need to learn more about the various coping methods utilized by youth, rich and poor, if our intent is better to understand both the role and consequences of limited opportunities.

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4. Morris Rosenberg, "The Dissonant Context and the Adolescent Self-Concept" in Sigmund E. Dragastin and Glen H. Elder, Jr., eds., Adolescence in the Life Cycle (Washington, D.C.: Hemisphere, 1975), pp. 97-116.

The war on poverty, while calling national attention to the condition of the poor, also acted as a stimulus for the publication of numerous reports, monographs, texts, and public commentaries all seeking to provide a realistic portrait of poor youth. In reviewing these materials, one can only be struck by the paucity of data. Without the benefit of comparative samples, samples of sufficient size, control for such critical variables as age, sex, race, and community, precise definitions of poverty or disadvantaged, or any data reflecting respondent attitudes, values, experiences, or needs sweeping generalizations were made and poor youth became a monolith. "You see one poor kid and you've seen them all." Rather than viewing poor youth within the usual framework of the adolescent-youth development process, poor youth were portrayed as products of some separate and distinct culture.

Two incidents from the early days of Job Corps might help illustrate my point. Early in 1965, Job Corps administrators thought it would be wise politically to bring a small group of Job Corps enrollees to Washington, the idea being to give Congressional representatives an opportunity to observe first hand the results of their congressional actions. The plan was to assign these enrollees to various federal agencies and congressional offices. Needless to say, great care was given to the selection of this group of Job Corps members. Upon their arrival in Washington, each of the enrollees was briefed and provided with the Job Corps dress uniform: gray slacks, blue blazer (with Job Corps insignia), blue, button-down shirt, pin strip tie, and black loafers. Beneath the uniform they might have been poor, but clothes do make the man. The reaction should have been predictable. Congressman Flood of Pennsylvania took one look and accused us of not fulfilling our mandate. More than a few OEO employees would not accept the fact that these were Job Corps enrollees and not ringers. The director of Job Corps held a similar view: these kids did not fit the tragic image we had painted for the Congress and, hence, their middle class appearance would be dysfunctional to the cause.

My second example held more serious implications for both enrollees and the Job Corps program. Having been one of the principals in the design and implementation of the Job Corps, I am compelled to admit that we did fail to differentiate between our public rhetoric and the realities of the situation. In a desire to explain away high attrition rates, center disturbances, failure to achieve enrollee quotas, and to persuade Congress of the difficulties of our task, we did much to contribute to the image of enrollees as alienated, hostile, emotionally distressed, and deficient in even the most basic of cognitive and interpersonal skills. Certainly, the Job Corps enrollees were, in comparison to middle class youth, less accomplished in intellectual skills, more likely not to have completed high school, more likely to be from disorganized families, more likely to have been involved in acts of delinquency, and more likely to have experienced prolonged periods of unemployment. We could not have expected otherwise since the attributes noted were supposed to be characteristic of those admitted to the Job Corps. Relative differences were not really taken into consideration. The strengths and motivations of enrollees were underplayed. Rather, the prevalent theme in many centers was to stress the emotional and attitudinal dimension while sacrificing relevant job skill training and the building of bridges between the enrollee and specific employment and job opportunities. The emphasis upon the minds, heads, and internal dynamics of enrollees did little to enhance job skills or post-training job placement. Further, I would think that this eclectic approach did help to stimulate attrition and discontent since many enrollees failed to see any relevant relationship between their expectations for job training and job placement and the day-to-day activities within Job Corps centers.

As Taggart points out, it was only when Job Corps began to take its legislated mission seriously that significant changes did occur:

> Second, overall Job Corps performance improved rather than deteriorated when many of the frills were slashed. Training and education were narrowed to specific job requirements. The key seemed to be the ability to gain access

> to better jobs rather than the efforts to alter the attitudes and values of enrollees.[5]

There is yet another lesson which can be learned from the Job Corps experience, and one that too many in policy, research, and program positions are reluctant to confront. In matters of youth employment training and formal schooling, much too much of the burden of proof has been placed upon the client, student, or trainee and too little attention has been given to those institutions responsible for the design of work settings; those responsible for increasing work opportunities; those responsible for the absorption and integration of newcomers into the work force. Obviously, in the business of education and work, it takes two to tango: people who are prepared to handle work responsibilities and institutions dedicated to maximizing work and career fulfillment. My own assessment of the education-work picture leads me to conclude that current youth employment training policies and programs reflect either naiveté or a deliberate avoidance of data-based reality: naive in behaving as if proper skill training and an assertive work attitude alone will lead to productive and satisfying employment: unfair in implying that the major problem is with people, young or older, who are either unwilling or unable to take on reasonable work or non-dead end employment. Indifference to the hard facts of shrinking job opportunities; increased competition in job entry; a reluctance on the part of employers to hire the young, particularly those who have not completed high school and those who are black, and indifference to the fact that most of the jobs available to poor youth, particularly those who have not completed high school and those who are not white, do not require much in the way of skill training and do not represent an opportunity for career stability and even less in the way of job satisfaction.

Without unduly belaboring the obvious, or going too far afield of my assignment, I want to make the point again that if our concern is with minimizing youthful alienation and problems of adjustment to limited opportunities, we would be wise, I believe to consider the commentary of Sar Levitan:

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[5] Robert Taggart, "Employment and Training Programs for Youth" in National Commission for Manpower Policy, From School to Work: Improving the Transition (Washington: Government Printing Office, 1976), p.121.

> Excepting a minority of youths who need special assistance to find and retain jobs, it would seem that all the help most teenagers needed to function effectively in the work force was enough jobs to go around. In labor markets with large job deficits, it's only to be expected that the inexperienced will be shoved to the end of the line and some will give up completely. My prescription for the day is that the best way to reduce unemployment--for youth as well as adults--is to create jobs.[6]

While I would concur with Levitan, I would add that in the case of the young, particularly poor youth, it is necessary to be somewhat more precise as to the kinds of jobs we have in mind.

Barton and his associates have conducted a variety of analysis which would confirm the existence of two labor markets--one for the young and one for adults.

> Teenage employment is different, even for those working full time, and even when they have been certified with a high school diploma. To make the point a distinction will be made between "youth jobs" and "adult jobs" or "regular jobs." It is not a precise one, and all jobs cannot be neatly placed into one category or the other. But roughly speaking the distinction exists, and it is important to recognize it.[7]

In pursuit of evidence to support the proposition that age is a critical factor and perhaps, especially among adolescents, of greater significance than a high school diploma or certified skill training, Barton reveals a number of provocative findings.

Utilizing special data from the Bureau of Labor Statistics, he is able to show that when comparisons are made of male high school graduates employed in 1969, of those ages eighteen and nineteen, 58% were operatives or non-farm laborers. For the age range of twenty-five to forty-four of the same educational level, only 27% were in these occupations. Further, a comparison of a wider range of occupational groupings shows that among males of the same age, eighteen and nineteen, no significant differences are found in occupational distribution when comparisons are made between high school and non-high school graduates.

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[6] Sar A. Levitan, "Coping With Teenage Unemployment" in National Commission for Manpower Policy, The Teenage Unemployment Problem: What Are the Options? (Washington: Government Printing Office, 1976), p.64.

[7] Paul E. Barton, "Youth Employment and Career Entry" in Seymour L. Wolfbein, ed., Labor Market Information for Youths (Philadelphia: Temple University 1975), p.85.

Reports published by the University of Michigan Survey Center reflect similar findings. The research, starting 1966, involved a national panel of 2,000 boys at that time in the tenth grade. The findings summarized below were based upon the 1970 survey.[8]

(A) Mean weekly earning for graduates was $112.00 compared to $119.00 for dropouts.

(B) Graduates were found to have a slim edge in occupational status, although not statistically significant.

(C) In response to the question, "What I have learned in high school helps me to do a better job," 13% of the dropouts answered very true, compared with 16% of the graduates.

Other data, including a Bureau of Labor statistics survey of the hiring practices of firms in ten communities provides some revealing findings. For nonoffice occupations, the percent of firms not hiring people under age twenty ranged from a low of 48% to a high of 76%. For office occupations the youth barriers were less severe reflecting the fact that young women with high school diplomas can move fairly quickly into clerical work.[9]

The findings presented above, available follow-up data from employment training programs, and the rather extensive investigation conducted by Kalachek suggest that the failure of youth to be employed is not necessarily the result of either holding or not holding a high school diploma; secondly, failure of youth to be employed may be more the result of restrictive and arbitrary hiring policies than the result of a lack of necessary motivation or skills;[10] further, that one consequence of this restricted and distinct youth job market combined with the increase in women in the labor force and the extension of the retirement age will be more and more youth competing for fewer and fewer jobs. More than one analyst has noted that without expansion of the job market and a critical examination of the current criteria utilized in the decision to hire or reject youth we will continue to experience significant youth unemployment; increased competition among youth for fewer and fewer "regular jobs"; and a hardening of those barriers which currently operate to separate the young, particularly those with the fewest bargaining resources, from entry into even those occupations which are considered as being an appropriate career starting point for the young.

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[8] Jerald Bachman, et al., Youth in Transition, vol. 3 (Ann Arbor: Survey Research Center, University of Michigan, 1971).

[9] Barton, op. cit., p.91.

Knowing the unemployment rate for youth does not tell us very much about how the young feel or deal with unemployment. Again, the available national or large scale inquiries do not provide answers as to the behaviors, problems, attitudes, or consequences of youth employment or unemployment.

Much of the attitudinal research focusing upon youth is most often restricted to the presentation of marginals. There is limited multivariate analysis, a failure to differentiate between age, SES, sex, and racial groupings. We know much more about those in college than those who are not students, more about males than females, more about the affluent than the poor, more about whites than nonwhites.

Still, there are a mixture of investigations which allow for comparisons between youth of varying SES, educational, and racial backgrounds. There are also several field studies which seek to describe the milieu and life style of the disadvantaged. Finally, there are studies which do provide some insights as to the factors which appear to be associated with variations in employment and educational achievement among poor youth.

Whatever the source of data, it is clear that contrasts in the achievement status of youth of different socio-economic backgrounds

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10. Edward Kalachek, The Youth Labor Market (The University of Michigan and the National Manpower Task Force, 1969).

is more the result of societal and resource constraints than significant differences in attitudes, values, or aspirations.

An American Council of Education research report entitled "Low Income Students: Do They Differ from 'Typical' Undergraduates?" concludes with the following statement:

> The implications of the present study are clear. Aside from the expected dissimilarities in their demographic and background characteristics (e.g. father's occupation), the low income undergraduate does not differ dramatically from his more affluent classmates. He shares with them the same life goals, degree aspirations, activities, and interests. He may be more likely to drop out--but only temporarily; he may shy away from student deomonstrations; he may get slightly lower grades; but overall, the likelihood of his attaining his degree in four years is reasonably close to that of his more privileged classmates.[11]

Similarily, a national survey conducted by Yankelovich in 1969 shows that with few exceptions, college and noncollege youth are not very different in expressed attitudes, values, and beliefs.[12] If anything, noncollege youth tend to be more traditional in responses, placing greater stress on the importance of law and order, a hawkish approach to View Nam, and respect for their elders. Noncollege youth, more so than those in college, emphasize the importance of "having the love and respect of your family" and "living the good Christian life." Finally, with regard to work-career related attitudes, noncollege respondents are more likely to believe that "hard work will always pay off if you have faith in yourself and stick to it"; "hard work keeps people from loafing and getting into trouble"; and "the individual who plans ahead can look forward to success and achievement of personal goals."

My own study of the work aspirations and expectations of graduating college seniors reflects minimal variations between white and nonwhite students. Major contrasts are found in postcollege degree plans and field of study. As might be expected, nonwhite graduates are confined to fewer fields of study and are more likely not to plan on enrolling in graduate or professional school immediately following college graduation.[13]

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[11] Enign I. Holmstrom, "Low Income Students: Do They Differ from "Typical" Undergraduates?" research report (Washington, D.C.: American Council of Education, 1973), pp.19-20.

[12] Daniel Yankelovich, "What They Believe," Fortune Magazine, (June, 1969) pp.70-71.

A 1966 study of some 1,300 male Job Corps enrollees provides both attitudinal and enrollee background data.[14] The typical enrollee had completed nine years of formal education at the time of entrance into the program. Reading sources indicate a 6.7 grade level; 63% had no previous record of any type of delinquent behavior, 27% had committed minor acts of antisocial behavior and 10% had been convicted of more serious offenses. Less than a fourth had contact with a doctor or dentist during a four year period prior to Job Corps enrollment. Only 10% had been employed in full-time jobs during the one year period preceding enrollment and this working group earned less than eighty cents per hour.

Comparisons of white and black enrollees indicate both differences and similarities. When asked to rank the importance of certain job and work characteristics, the great majority (90%) of both racial groups agreed that "if you work hard you can get ahead." Generally, black enrollees were more likely to have come from single parent homes, with parents having completed fewer years of formal schooling and with parents who have experienced longer periods of nonemployment. Significant differences were found in matters of preferred work settings and work styles. Blacks much more so than whites showed a preference for indoor jobs, jobs where you have an opportunity to "use your own ideas." However, the majority of enrollees, white and black, agreed that education and hard work were the critical factors in allowing a person to

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[13] David Gottlieb. Youth and the Meaning of Work (Washington: Government Printing Office, 1974).

[14] David Gottlieb, "Poor Youth Do Want to Be Middle Class, But It's Not Easy," Personnel and Guidance Journal, vol. 15 (October 1967), pp.116-22.

"get ahead." Further, white and nonwhite enrollees were in agreement that for the most part, parents and teachers were supportive and desirous of enhancing enrollee success. At the same time, less than a fifth of all enrollees felt that there was a high degree of consensus between their cover aspirations and the activities or requirements of the schools in which they were enrolled.

Utilizing employment status as an indicator of successful transition from school to work would give the impression that for most youth time alone will heal all problems associated with unemployment. That is, if the young can just hang in there long enough and avoid the detrimental consequences of prolonged detachment from school and employment, then eventually the majority will somehow be absorbed and integrated into the socially acceptable workings of the system. Again, we can say little about the emotional, social or economic damage caused by prolonged periods of isolation from school, work, or training program. Nor, as noted earlier, can we assume that involvement with school, work or training implies that all is well with the young.

From the available data, it seems safe to conclude that the vast majority (97% in 1971) of fourteen- to sixteen-year-old males are enrolled in school. About a fourth of those in school are working, mostly part time. The major shift to work occurs around the age of seventeen and is largely completed by age twenty-four or twenty-five, with more than 85% of the youth at that age out of school and more than 90% of those out of school working or serving in the armed forces.

Young women follow a similar pattern except in that they show a tendency to terminate schooling at a somewhat faster rate after age sixteen. There has, however, been a leveling off and the gap between males and females is rapidly declining with increases in female college and postcollege enrollment and marked increases in labor force participation.

Disadvantaged youth are among those most likely to experience barriers in the normal or usual transition process. In general, hard-to-employ youth are defined as members of a minority group, not regular members of the labor force, urban dwellers, with less than a secondary school education, and of very low socio-economic backgrounds.

An analysis of historical trends in youth unemployment makes clear that it is the black population which is least likely to become connected with employment. As Regis H. Walther concluded in his extensive review of youth employment studies:

> The labor market problems of black youth are matters of particular concern because of the size of the black population (about 13% of the youth population), the long history of overt discrimination, and the severity of their labor market problems. Black youth do worse than white youth in every age, sex, and education achievement category, except perhaps for college graduates.
>
> A look at the long term trends indicates that the situation has been steadily deteriorating for a number of years. Twenty years ago, non-white and white males within the same age bracket of 16-19 had roughly comparable participation and unemployment rates. Non-white females had a significantly higher unemployment rate than white females in 1954, but the gap has been steadily widening in the intervening years. In 1975 the unemployment rate for out-of-school 16-17 year old non-whites exceeded 60%. This exceptionally high rate was partly a result of the economic down-turn during 1975, but in the previous year when conditions were not as bad, it had reached 50%.[15]

Walther also identifies a number of factors which others have proposed as being of critical importance in differentiating between "hard to employ youth" who either succeed or fail in employment training programs.[16]

Birthplace:	Higher retention for those from the South as compared to those from the urban North.
Marital Status:	Married youth perform better than unmarried youth. Obviously an important intervening variable with those between the ages of sixteen to eighteen showing less program commitment than is the case for older youth.

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[15] Regis H. Walther, "Analysis and Synthesis of DOL Experience in Youth Transition to Work Programs," 1976 report available from National Technical Information Service, VA 22151, p.47.

[16] Ibid, pp.53-56.

Test Scores:	Scores on IQ and reading achievement tests are positively associated with good performance.
Family Background:	Youth from two-parent families not on welfare do better than those who are products of familial disorganization and those who come from mother-headed welfare families.
Family Atmosphere:	Parental punitiveness and lack of support are highly associated with program failure.
School Activities:	The more successful enrollees are those who did well in school, completed more years of schooling, and were not classified as disciplinary problems.
Contact with Police:	Poor performers were more likely to have delinquency records.
Previous Work Record:	Good performers have better work records and are less likely to have experienced prolonged periods of unemployment.
Role Models:	Identification with positive role models is more characteristic of those who perform well than of those who leave the program prior to completion.
Optimism:	Good performers express a more positive attitude and a greater self-confidence.
Socialized Values:	Belief in education and hard work are considered important ingredients for successful performance.
Trust:	Good performers are more trusting of others.
Personal Competence:	Past successful achievement in school or work is more characteristic of good performers.
Self Evaluation:	The more positive the self evaluation the better the performance.
Staff Evaluation:	Those ranked most highly at time of program entrance were later judged to be better performers.
Planning Ahead:	Better performers have better crystalized personal goals and plans.

Peers: Performance is associated with involvement with and dependency upon peers and the nature of the peer group. Good performers are less dependent upon peers and less likely to be involved with peers engaged in antisocial behavior.

With regard to the Walther listing, several observations are in order. First, whether the population be poor or rich, male or female, black or white and whether the setting be school, work, or training program, these same variables typically emerge as being of critical importance. Second, measurements of success leave a great deal to be desired. For the most part the dependent variable is program completion and attrition. Those who complete the program are labeled as good performers, those who leave are classified as poor performers. Third, it is difficult, if not impossible, to determine which are the independent and which are the dependent variables. Is good performance a product of high esteem or does high self-esteem generate good performance? No doubt there is some mutual variable interaction, but these studies fail to define just what factors, in just what settings, with just what kinds of youth, will predict or explain good or poor performance.

Throughout this paper I have attempted to speak to the question of alienation and adjustment to limited prospects as experienced by disadvantaged youth. As indicated throughout the body of this paper there is, in fact, little in the way of reliable or empirical data which would shed much light on the subject. I have also sought to identify areas of inquiry which should be pursued if there is serious interest in knowing the ways in which youth, particularly poor youth, respond and adjust to perceived barriers. Further, there is a need to study the ways in which current hiring policies act to block youth from employment.

It is my hope that through the combination of in-depth personal interviews, ethnographic field research, and validated survey instruments, we will, in the future, be able to provide answers to the many important questions being raised in this conference.

DO YOUTH REALLY WANT TO WORK: A COMPARISON OF THE WORK VALUES AND JOB PERCEPTIONS OF YOUNGER AND OLDER MEN

By Patricia Y. Miller and William Simon

ABSTRACT

Recognizing the dearth of available research on the work values of youth, the paper examines these using data drawn from a random sample of 1992 men between the ages of eighteen and forty-nine. A varimax factor analysis of twenty-seven items concerning work values produces six factors: Intrinsic Work Rewards, Economic Rewards, Security Rewards, Social Rewards, Interpersonal Rewards, and the Antiwork Ethic. Considering only men whose annual incomes were less than $15,000, small but significant differences are found between younger and older men with reference to the value attached to Economic Rewards, Security Rewards and the Antiwork Ethic. Examination of a comparable set of items concerning worker perceptions of access to these rewards indicates that older men consistently and, sometimes, substantially report greater satisfaction in their present jobs in terms of these. Unemployment is not associated with work values. Ethnic minorities appear to undervalue Intrinsic Work Rewards and overvalue Economic Rewards, Security Rewards and the Antiwork Ethic. The analysis concludes that substantial continuity characterizes the work values of younger and older men.

INTRODUCTION

All too often, the major source of specific policy problems is to be found in the unanticipated consequences of otherwise effective improvements in the system of social arrangements that obtain in one or another sector of the society. Thus, improved law enforcement frequently appears to exacerbate the crime "problem," improved health care delivery systems create an elderly citizen "problem" and industrial innovations compound the unemployment "problem." Characteristically, those in the "helping professions," particularly in advanced western societies, experience enormous frustration in their efforts to improve the lot of such groups. These frustrations give rise to the impulse to blame the victim, to stress hypothetical explanations that locate the source of the "problem" in the real or imagined characteristics of the client. A predictable feature in the evolution of virtually every social problem is the evolution of at least one explanation emphasizing the complicity of the individual in his or her own difficulties.[1]

With reference to unemployment, Kalachek has observed that rising unemployment is accompanied by increased cynicism toward the unemployed, as critics mobilize skepticism about their sincerity in seeking jobs or their willingness actually to work.[2] The most recent expressions of such cynicism are profitably considered against the backdrop of the late 1960s.

During these years, the conjunction of industrial expansion, a wartime economy and federal programs directed toward the hard-core unemployed provided an abundance of entry level employment opportunities for the young, particularly those with college training. As the intellectual founders of the social sciences would have predicted, the expectations of many young people, assured of their "right" to work, escallated to encompass other, in this case moral, concerns. They said they wanted jobs that were intrinsically interesting and socially responsible. A good wage and the promise of career advancement opportunities were no longer sufficient in themselves to attract an adequate number of youth to certain kinds of jobs or specific industries.

These rising expectations asserted by the young caused speculation that a radical disjuncture had occured in the work values of some Americans corresponding to or in consequence of their political opposition to American foreign and domestic policy in general and the unpopular war in Viet Nam in particular. More judicious observers suggested that a long-term transformation in the ethics of work accounted for the emergence of social responsibility as a pivotal value.[3]

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[1] In circumstances where blaming the victim is impractical due to the intensity of popular sentiment, responsibility for the problem may be directed toward a surrogate chosen from among those in proximity to the actual victim, e.g., kin.

[2] Edward Kalachek, The Youth Labor Market (University of Michigan and the National Manpower Task Force, 1969). pp. 72-73.

[3] Jacob W. Getzels, "On the Transformation of Values: A Decade After Port Huron," School Review, vol. 80 (August 1972); pp. 505-19.

Some argued that the assimilation of this generation and its emphasis on social responsibility into the labor force would profoundly alter the character of work as well as the moral context in which economic activity occurs. (How remote all at once appears the warning of a "youth revolution," how distant the point of a demographic accident that gave us "half the population under twenty-five," as if that marked some cultural watershed.) Less optimistically, others suggested that the rising expectations of youth with reference to work presaged a diminished commitment to work itself in the maturing cohort, that their posture towards work promised unwholesome consequences for both industry and the economy.

A subsequent scarcity of employment opportunities in the intervening years fostered, we are told, a growing preoccupation among the young with the availability and security of employment. With scarcity, the mechanisms of relative deprivation generating rising expectations moved into reverse and the chorus of concern for intrinsic rewards and social responsibility in the job setting was substantially muted. The legacy of the 1960s, however, is a lingering suspicion that the present difficulties youth experience in acquiring and maintaining employment are somehow conditioned by flaws in their work values which render them poor candidates for full participation in the labor force. It is certainly recognized that contemporary youth are disadvantaged by an economy that can provide them with fewer jobs than they need and a dual labor market that decidedly favors the educated, trained and experienced workers in the high caste or primary sector. Nevertheless, underlying these objective obstacles to youth's adjustments to work is the suggestion that the young are further disadvantaged with regard to employment by unrealistic expectations concerning the content and rewards of participation in the labor force.

Curiously, these enormous swings alleged in the work values of youth left few empirical residues. From the perspective of the theory testing that organizes "normal science," the paucity of research on the work values of youth is not particularly surprising. While such values are potentially important from a practical perspective, they fall into the interstices of the theoretical concerns that dominate research on this population. Particularly marked is the neglect of those whose entry into the labor force (a) occurs earliest, and (b) without benefit of the services of some protective institution. We can only speculate about the factors that account for the disinterest in these youth apparent among those responsible for policy.

The handful of extant studies provides very limited data from which to evaluate the stability of work values across cohorts of youth. Somewhat more research is available for college students. Davis' classic study stresses the salience of intrinsic work rewards for a sample of college students in the 1960s.[4] Compared to such factors as money, career advancement and opportunities for the exercise of leadership, these students cited opportunities to be helpful to others and useful to society, or to be creative and original, substantially more often. By the late 1960s Yankelovich had distinguished "forerunners" from "practical minded" college students. The former disproportionately stressed the altruistic and instrinsic aspects of work; the "practical minded" were somewhat more likely to value job security, income and prestige.[5] Studying college seniors in the 1970s, Gottlieb similarly found that they emphasized the altruistic or social responsibility component of work as well as its intrinsic rewards. Moreover, he observed that they place less importance on money, prestige and status compared to the students interviewed by Davis about ten years earlier. Interestingly, the values of these seniors varied markedly according to their fields of study. Thus, for example, men in business administration and engineering were more likely to view work predominately as a means to make money while men in agriculture disproportionately believed that work provides a means for becoming a better person.[6]

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[4] James A. Davis, Great Aspirations (Chicago: Aldine Publishing Company, 1964).

[5] Daniel Yankelovich, "What They Believe," Fortune, vol. 79 (January 1969), pp. 70-71; 179-181.

In a follow-up study one year later, these college seniors reported on their early experiences in the world of work. Among those working, the "most important reasons" cited for taking their current jobs were "interest in job" (33% of the males, 40% of the females) and "needed money to live" (26% of the males, 27% of the females). Moreover, half reported that they were earning less than they had expected to before they entered the labor force. While a substantial number appear to have experienced the economic realities of work as somewhat harsh, the majority found intrinsic and altruistic work rewards accessible to them.[7]

Our review of the limited research available on the work values of college students in recent years suggests that their values have remained fairly stable. Nevertheless, the work of both Gottlieb and Yankelovich indicates that there is considerable heterogeneity in values among students which corresponds to their orientations toward the interface between education and career. Further research on the development and maintenance of work values and the ways in which these are translated into educational endeavors and career plans would appear to be indicated.

Research related to the work experience of nonstudents is particularly sketchy. Studies are available to confirm common-sense assumptions regarding the impact of education, work experience, race, gender and levels of occupational information on objective indicators of work adjustment such as earnings, unemployment experience and occupational status.[8] Additional research documents the particular problems experienced by low-income ethnic minorities with respect to employment.[9] Very little is known about the social-psychological dimension of work for noncollege youth.

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[6] David Gottlieb, Youth and the Meaning of Work (Washington: U.S. Department of Labor, 1974).

[7] David Gottlieb, Youth and the Meaning of Work, Part II (Houston: The University of Houston, 1974).

[8] Herbert S. Parnes and Andrew I. Kohen, "Labor Market Experience of Noncollege Youth: A Longitudinal Analysis," in From School to Work: Improving the Transition (Washington: Government Printing Office, 1976), pp. 57-88.

Not surprisingly, the handful of available studies suggest that the work values of noncollege youth differ substantially from those of young men and women attending college. Based on the Yankelovich data, noncollege youth are less likely to emphasize altruistic and intrinsic work values. Moreover, compared to the "forerunners" among college students, substantially greater numbers of noncollege youth stress the importance of money and prestige. In fact, the value attached to money and prestige by noncollege students is comparable to that of "practical minded" college students.[10] Similarly, practical concerns, such as job security, wages and opportunities appear prominently in the job concerns of high school students.[11] A British study of early entrants into the labor force suggests that intrinsic factors and, secondarily, practical concerns impact on job satisfaction.[12] And Gottlieb concludes that the work values held by Job Corps participants are essentially middle class.[13]

It appears, then, that the work values of noncollege youth are not radically dissimilar to those of college youth. The meaningfulness of work is a high priority for both groups, but less so for those not attending college. Practical concerns for job security, salary and opportunities for advancement are secondary to a concern for meaningful, satisfying work activity for both groups, but such practical con-

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9. Paul Bullock, Aspiration Vs. Opportunity: "Careers" in the Inner City (Ann Arbor: Institute of Labor and Industrial Relations, 1973).

10. Yankelovich, op. cit.

11. A.C. Erlick and A.R. Starry, Vocational Plans and Preferences of Adolescents, Poll 94 (West Lafayette, Ind.: Purdue University, 1972).

12. Joan Maizels, Adolescent Needs and the Transition from School to Work (London: The Athlone Press, 1970), p. 256.

13. David Gottlieb, "Poor Youth Do Want to be Middle Class, But It's Not Easy," Personnel and Guidance Journal, vol. 15 (October 1967), pp. 116-22.

cerns are more prominent among noncollege youth.

As we indicated earlier, the mechanisms of relative deprivation naturally function to escalate expectations where basic needs are predictably secure. Thus, the work values of Gottlieb's college seniors--who believed that their salary requirements would be easily satisfied--emphasized intrinsic and altruistic work factors. Noncollege youth, we can be sure, are less secure in the belief that their basic needs or practical requirements will be satisfied and the contrast between intrinsic and economic values is less striking for them compared to college students.

The critical question of continuity in work values remains. While some young people undoubtedly have difficulty adjusting to employment because their expectations are unrealistic, it is not clear whether the difficulties of contemporary youth with reference to entry into the labor force can be traced to the values of this cohort. To answer this question requires the comparison of values held by youth in the labor force with those of older men who claim essentially similar occupational niches. As the classic study, The American Soldier demonstrates, it is the "veterans" who create the context within which neophytes experience and evaluate their own responsibilities.[14] This wisdom is reinforced with reference to work orientations by Coleman, who argues against the ghettoization of youth, citing the role of established workers in the occupational socialization of the young.[15] We must also avoid the impulse to ghettoize youth in our research efforts; it is to the established worker that we must look for the standard by which to judge the neophyte. For this reason, we have self-consciously chosen to focus exclusively on noncollege youth and their older counterparts in the analysis of work values we have undertaken.

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[14] S.A. Stouffer, A.A. Lumsdaine, R.M. Williams, Jr., M.B. Smith, I.L. Janis, S.A. Star, and L.S. Cottrell, Jr., The American Soldier: Combat and Its Aftermath (Princeton: Princeton University Press, 1949).

[15] James S. Coleman, et.al., Youth Transition to Adulthood (Chicago: University of Chicago Press, 1974), pp.132-33.

The work values of college youth are certainly important and should be pursued for this data set, but time-cost-space considerations dictate a narrower focus here. More critically, we believe our decision enables us to contribute a perspective that is presently unavailable in the literature.

In passing, we would like to observe that values are not fixed attributes. They are dynamic in response to the characteristics of specific situations. Rich rewards would undoubtedly flow from the research effort to trace the shifts in values that occur with entry into the labor force and the concrete work experiences that follow. We would expect the expressed values of workers to reflect a compromise between their ideal values and their perceptions of their own access to specific work rewards as well as the climates of value that describe their work worlds at any given time. Moreover, shifts in work values occur in response to changes in other, nonwork-related sectors of the individual's life. Contemporary changes in family values and family formation behavior, while beyond the scope of this analysis, are undoubtedly reverberating into the world of work in as yet unknown ways.

Our evaluation of the work values of young men is based on the secondary analysis of interview data collected during 1976-77 from a national random sample of 1992 men. The sample was restricted to those between the ages of eighteen and forty-nine but included men living both in households and on college campuses. Compared to the 1970 Census, the demographic characteristics of the sample with respect to age, race, occupational status, income and education are within the normal range of sampling error.

Since our particular concern is with the work values and job perceptions of youth actually in the full-time labor force, the 318 students who fell into the sample have been excluded from this analysis. In addition to the students, fifteen men who were serving in the military were also excluded here as well as fifteen additional cases where the respondent was handicapped or otherwise disqualified.

Certain common sense predictions can be made with considerable assurance about the objective and subjective present and future experiences of contemporary young men with limited education. They enter the labor force in marginal, unskilled or minimally skilled occupations. They earn modest wages, somewhat higher than the legal minimal wage. Initially, they experience higher unemployment and interfirm mobility than virtually any other group of men. In time, their labor force participation stabilizes as they move into the skilled or semiskilled trades or the lower-middle levels of white collar technical and clerical occupations. While the high earning potential of some of the blue-collar trades in recent years has become legend, the majority of such men will continue to earn substantially less than their college educated counterparts. Although clearly sharing many values with their fellow Americans, their lifestyles and values will remain somewhat distinctive.

The recognition that such men possess a distinctive constellation of political and economic values and, additionally, occupy a specific structural location in American society persuades us that a gross comparison of younger with older workers would be confounded by cohort effects that favor the older worker with minimal schooling. We are, of course, interested in comparing recent entrants into the labor force with established workers. For the comparison to be meaningful, however, some assurance is required that any observed differences are due to age and its correlates rather than to extraneous uncontrolled variables.

Education is one such variable that is particularly troublesome. The number of men completing secondary and post-secondary education has increased steadily over the years since World War II when the oldest men in this study entered the labor force. Accompanying the proliferation of higher education has been sporadic changes in the meaning of specific educational achievements for occupational mobility. For this reason, the analysis will be restricted to men whose annual incomes during 1975 were less than $15,000, on the assumption that income rather than education, occupation or some combination of these provides the best available marker of restricted occupational achievement. This resulted in dropping a total of 460 cases; the preponderance of these were men over thirty who accounted for 345 of the excluded respondents. There remain substantial differences in annual income that correspond with age--the zero-order correlation (r) between age and income is .286. The median income for men between eighteen and twenty-two is $4,953; for men between twenty-three and twenty-nine the median increases to $7,337 and finally reaches $10,187 for men aged thirty to forty-nine.

Nevertheless, the exclusion of these cases did result in greater homogeneity across age with respect to the dependent variables. The reader should be advised, however, that the substantive conclusions of the present analysis were sustained in a parallel analysis of data for the entire sample exclusive of students.

Respondents were asked to answer more than 400 questions concerning their family, political, economic and leisure activities and values. Included were twenty-seven items designed to evaluate work values. The items concerned various aspects of the work context--salaries and benefits, co-workers, the physical environment, the meaningfulness of work, and so forth. Respondents were asked to assess the importance to themselves of each work attribute. The available response categories were then weighted as follows:

4=Very Important/3=Somewhat Important/2=Only Slightly Important
1=Not Important At All

Responses were entered into a varimax factor rotation and six factors were extracted (Table 1). It was possible to assign twenty-five of the twenty-seven items to one or another factor. In a couple of instances, face validity was used to determine to which of two competing factors an item should be assigned. This occurred where an item obtained approximately equal loadings on each of two factors. While we obviously anticipated that work values would factor--Gottlieb's finding that values correspond to course of study among college students implies as much--earlier research has neglected the potential of this technique.

TABLE 1

VARIMAX ROTATED FACTOR LOADINGS

	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6
	Intrinsic Work Rewards	Security Rewards	Antiwork Ethic	Social Rewards	Interpersonal Rewards	Economic Rewards
Doing meaningful things	.682	.043	.035	.085	.169	-.092
A chance to use your mind and abilities	.677	-.015	-.026	-.052	.184	.020
New challenges	.660	-.053	.005	.129	.113	.073
Intellectual stimulation	.598	.002	.040	.353	-.053	.038
A chance for personal growth	.552	.065	-.025	.266	.202	.111
Freedom to decide how to do the job	.468	.025	.095	.145	.006	.066
Working for a company you respect	.432	.227	-.028	.214	.295	.095
Appreciation for a job well done	.403	.087	.113	-.040	.351	.078
A good pension plan	.032	.818	.140	.049	.088	.045
Job security	-.024	.591	.095	.022	.219	.185
Fringe benefits	.109	.588	.241	.138	.105	.204
Being able to retire early enough with good money	.048	.538	.341	.007	-.047	.162
Not having to work too hard	-.068	.235	.682	.065	-.028	.151
A comfortable routine that is easy to handle	-.068	.213	.677	.078	.203	.081
Getting away from problems at home	-.049	.033	.467	.217	.160	.117
Having enough free time to enjoy other things	.183	.136	.436	-.013	-.027	.034
Opportunity for travel	.125	-.014	.316	.555	.035	.157
Meeting interesting people	.413	-.009	.212	.533	.112	.087
Contributing to company's progress	.345	.199	.009	.476	.136	.082
Contribution to society	.425	.150	.059	.428	.029	-.164

TABLE 1 (cont.)

VARIMAX ROTATED FACTOR LOADINGS

	Factor 1 Intrinsic Work Rewards	Factor 2 Security Rewards	Factor 3 Antiwork Ethic	Factor 4 Social Rewards	Factor 5 Inter-personal Rewards	Factor 6 Economic Rewards
Having the respect of the people you work with	.340	.196	.099	.097	.527	.052
Friendly people to work with	.307	.087	.228	.076	.418	-.031
An opportunity to make a great deal of money	.064	.211	.291	.174	-.005	.643
A good salary	-.004	.310	.174	-.030	.033	.522
A chance for advancement	.285	.207	.035	.174	.274	.400
Having somewhere to go, something to do everyday	.145	.038	.282	.196	.210	.067
Pleasant physical surroundings	.229	.220	.335	.226	.302	.097
Eigenvalues (before rotation)	6.460	3.312	1.652	1.293	1.120	1.068

The analysis is organized in terms of the factors, which we call Intrinsic Work Rewards, Security Rewards, the Antiwork Ethic, Social Rewards, Interpersonal Rewards and Economic Rewards. Six unweighted sum scores were computed for each respondent based on his answers to the items which define each factor. Five of these[16] and the responses to the associated items themselves provide the basis for much of the analysis. Examining these in terms of age will enable us to evaluate the extent to which the work values or expectations of young workers differ from those of older established workers.

In a parallel set of items, men who were employed at the time of the interview were asked to evaluate their own jobs in terms of the same characteristics of the work context, i.e., salaries, benefits, co-workers and the rest. The available response categories were then weighted as follows:

4 = Excellent/3 = Pretty Good/2 = Only Fair/1 = Poor

A set of sum scores was computed for each respondent corresponding to those created above with reference to work values. Examining these for men in different age groups[17] will enable us to evaluate differences in men's perceptions of their access to various kinds of work rewards as they move through the life cycle.

INTRINSIC WORK REWARDS AND THE ANTIWORK ETHIC

Men place a high value on intrinsic work rewards, the rewards of work activity itself. A majority of the men in this study said that challenge, growth, autonomy and the sense that they were making meaningful contributions were "very important" to them (Table 2). In fact, with one exception--intellectual stimulation--a majority of the respondents indicated that each component of the Intrinsic Work Reward Index was extremely important in their assessment of a job. It is not par-

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[16] The analysis of the Social Rewards factor was dropped due to space considerations.

[17] For ease of presentation, the data concerning men between ages twenty-three and twenty-nine are not reported in the tables. These men are included in the correlations (r's) reported throughout the text.

TABLE 2

INTRINSIC WORK VALUES AND JOB PERCEPTIONS BY AGE, INCOME AND LABOR FORCE STATUS (MEN EARNING LESS THAN $15,000 A YEAR WHO ARE NOT IN SCHOOL OR IN THE MILITARY)

	Percent Responding "Very Important" To Each Intrinsic Work Reward		Percent Rating Own Jobs "Excellent" With Respect To Each Work Reward	
	Age		Age	
Intrinsic Work Rewards	18-22	30-49	18-22	30-49
Doing meaningful things	63.5	65.2	16.5	27.7
A chance to use your mind and abilities	71.9	72.7	19.7	30.2
New challenges	61.2	55.1	18.7	26.6
Intellectual stimulation	41.9	40.9	7.3	15.2
A chance for personal growth	63.6	58.8	18.1	17.1
Freedom to decide how to do the job	54.2	57.7	18.3	32.0
Working for a company you respect	58.4	69.3	20.3	27.1
Appreciation for a job well done	59.8	60.7	15.3	20.3
Intrinsic Work Rewards Indexes	$\bar{X}$ 27.74	27.68	$\bar{X}$ 20.29	23.00
	SD 4.59	4.33	SD 6.25	5.43
	N 256	454	N 169	361
	t 0.18		t 4.83***	

***p < .001

ticularly surprising that intellectual stimulation is devalued by these men since their rather limited educations belie any serious interests in intellectual pursuits.

An impressive percentage of men stress the importance of intrinsic work rewards; hence, minimal emphasis on those values subsumed under what we call the antiwork ethic is to be expected. The antiwork ethic, which refers to opportunities to avoid challenge in work and to maximize extra work goals, is conspicuous because overall it represents those values with the least salience for our respondents (Table 3). Less than a third cite three of the four items--not having to work too hard, a comfortable routine and getting away from problems at home --as "very important." Roughly half of the men stress "having enough free time to enjoy other things." A slightly greater number of young men emphasize the importance of free time and this difference is the major factor providing a statistically significant difference for the index. While the Antiwork Ethic looms larger among young men, an examination of the actual mean scores indicates an impressive continuity of values between young and older men. Extrawork and antiwork goals are not characteristic of men at any age. Interestingly, the partial correlation (r) of the index with employment status[18] controlling for age (.09) indicates a slightly greater tendency for men who are unemployed to hold antiwork ethic values. Similarly ethnic minority men[19] are more likely to value the antiwork ethic (r = .21).

The value attached to intrinsic work rewards is not conditioned by age. The Intrinsic Work Values Index is correlated with ethnicity (-.11) and the size of this correlation is unchanged in the partial where age is controlled. Thus, compared to minorities, white men are somewhat more likely to value intrinsic work rewards. More critically, the small, insignificant negative correlation between Intrinsic Work Values and employment status (-.04) indicates that both employed and unemployed men value intrinsic work rewards equally.

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[18] Dummy variable: 0=employed/1=unemployed.

[19] Dummy variable: 0=white/1=black, Puerto Rican, Oriental, American Indian, Mexican American.

TABLE 3

ANTIWORK ETHIC VALUES AND JOB PERCEPTIONS BY AGE, INCOME AND LABOR FORCE STATUS (MEN EARNING LESS THAN $15,000 A YEAR WHO ARE NOT IN SCHOOL OR IN THE MILITARY)

	Percent Responding "Very Important" To Each Antiwork Ethic Job Reward		Percent Rating Own Jobs "Excellent" With Respect To Each Work Reward	
	Age		Age	
Antiwork Ethic Rewards	18-22	30-49	18-22	30-49
Not having to work too hard	17.8	20.7	8.3	7.9
A comfortable routine that is easy to handle	29.0	30.4	11.8	14.4
Getting away from problems at home	19.2	15.7	9.0	16.6
Having enough free time to enjoy other things	53.8	47.8	15.5	15.8
Antiwork Ethic Indexes	$\bar{X}$ 10.75	10.06	$\bar{X}$ 10.06	10.79
	SD 3.37	3.58	SD 2.52	2.56
	N 258	457	N 160	323
	t 2.58**		t 3.02**	

**$p < .01$

While the value men attach to intrinsic work rewards is not influenced by age, older men do perceive greater access to these rewards. Except for one item--a chance for personal growth--more older men, those between thirty and forty-nine, indicated that the rewards provided by their own jobs were "excellent." Moreover, the magnitudes of the differences between the two groups of workers is substantial in most cases, a fact that is clearly reflected in the signicant difference found in the Intrinsic Work Rewards Index.

In sum, younger and older men equally value work for the rewards inherent in the activity. Quite consistently, though, fewer young men believe that their jobs are effectively providing them with these rewards. But even among older men, the percentages rating their jobs as "excellent" with respect to each item is, in virtually every case, less than half of the percentage stating that a given work value is "very important" to them.[20] Modern industrial societies rely on the internalization of certain values, values that advance worker involvement in the task. Based on our data, the American system is conspicuously successful in fostering these values but markedly less successful in providing for their satisfaction.

This disparity between values and satisfaction clearly raises a significant issue, as the character of work in industrial and post-industrial societies continues to change, to become progressively more abstract and routine. Accompanying these changes is a decline in access to creative and meaningful job activity. This would appear to be particularly true for the kinds of entry-level positions available to younger men with limited education, jobs requiring minimal skills and virtually no experience. As these young men gain experience in the labor force, the content of their work roles will presumably be upgraded, providing somewhat greater access to intrinsic work rewards

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20. Throughout the analysis, the percentages rating their jobs as "excellent" with respect to a given characteristic generally increases (but the disparity by age is sustained) when just those men describing it as "very important" are considered. Thus, men who consider a trait important appear to be more likely than others to find it in their jobs.

for some. For others, alternative outcomes are suggested by Chinoy's study of automobile workers.[21] To what degree is displacement of aspirations still applicable? Do other sectors of life, such as leisure activity, take on added significance for men deprived of meaning in their work? The development and maintenance of values across the life cycle remains unexamined.

SECURITY AND ECONOMIC WORK REWARDS

Understandably, most men are highly concerned with the security of their jobs. In fact, more men cite job security as "very important" to them than any other work value considered in this analysis (Table 4). The very modest, insignificant tendency for more older men, those between thirty and forty-nine, to attach considerable importance to job security is perhaps surprising in view of the well recognized fact that the risks of unemployment are borne disproportionately by the young. About ten percent of the men in this study who are twenty-three or older describe themselves as unemployed. Among nonstudents between eighteen and twenty-two this rises to 24%. Young men are less likely to have dependents and, more critically, experience fewer concerns for protecting their pension interests. While job insecurity and unemployment are undesirable for the overwhelming majority of all men (indeed, only 1% of the men in this study said that job security was "not important at all" to them), it creates fewer personal dislocations for young men. For the older worker, it is the magnitude of dislocation rather than the actual risk of unemployment that provokes such marked concern for job security.

Monetary concerns rival concern for job security among these men (Table 5). This recognition implies that the trade-off of income for security that may once have shaped occupational values is no longer viable. Among younger respondents, the percentage saying "a good salary" is "very important" (72%) is roughly equivalent to the number stressing "job security." While somewhat fewer older men emphasize salary, the

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[21] Ely Chinoy, Automobile Workers and the American Dream (Garden City: Doubleday, 1955).

TABLE 4

SECURITY WORK VALUES AND JOB PERCEPTIONS BY AGE, INCOME AND LABOR FORCE STATUS (MEN EARNING LESS THAN $15,000 A YEAR WHO ARE NOT IN SCHOOL OR IN THE MILITARY)

		Percent Responding "Very Important" To Each Security Work Reward			Percent Rating Own Jobs "Excellent" With Respect To Each Work Reward	
		Age			Age	
Security Rewards		18-22	30-49		18-22	30-49
A good pension plan		49.0	66.8		9.6	12.5
Job security		72.8	75.9		12.0	24.0
Fringe benefits		51.2	59.0		10.2	19.9
Being able to retire early enough with good money		39.7	48.8		2.4	9.5
Security Work Rewards Indexes	$\bar{X}$	13.30	13.83	$\bar{X}$	8.54	10.20
	SD	2.67	2.62	SD	3.14	2.98
	N	260	460	N	156	371
	t	2.56*		t	5.56***	

*p < .05
***p < .001

TABLE 5

ECONOMIC WORK VALUES AND JOB PERCEPTIONS BY AGE, INCOME AND LABOR FORCE STATUS (MEN EARNING LESS THAN $15,000 A YEAR WHO ARE NOT IN SCHOOL OR IN THE MILITARY)

		Percent Responding "Very Important" To Each Economic Work Reward			Percent Rating Own Jobs "Excellent" With Respect To Each Work Reward	
		Age			Age	
Economic Work Rewards		18-22	30-49		18-22	30-49
An opportunity to make a great deal of money		44.6	35.4		9.3	8.9
A good salary		72.0	68.1		9.2	11.0
A chance for advancement		66.2	57.4		15.1	14.2
Economic Work Rewards Indexes	$\bar{X}$	10.55	9.97	$\bar{X}$	6.95	7.49
	SD	1.55	2.01	SD	2.34	2.10
	N	259	459	N	176	380
	t	4.34***		t	-2.58**	

**p < .01
***p < .001

percentage is still substantial (68%). The conclusion that practical concerns are disproportionately salient for working-class men is reinforced if we compare these findings with data for college seniors. Based on the studies reported by Davis[22] and Gottlieb[23] which included college women, who presumably devalue such practical concerns, the percentage of young men in this study who say that "an opportunity to make a great deal of money" is "very important" (45%) is substantially greater. Thirty-one percent of the college men in the present sample share this view, suggesting that even in the context of an unfavorable economic climate, the disparity persists.

The differences between younger and older men in the value attached to both economic rewards and security rewards are once again very small but, nonetheless, statistically significant. Older men are somewhat more likely to stress Security Rewards, most notably as these relate to pension considerations. Older men were expected to emphasize security; it was surprising, however, to find a roughly comparable level of concern for this kind of security among young men. Conversely, young men disproportionately value economic rewards in terms of both income and promotion opportunities. It should be remembered that young men report substantially lower earnings; moreover, the major economic investments of their lives lie in an uncertain future, with marriage, children and home ownership. Again, however, the explanation for age disparities appears more compelling than the observed disparities themselves, which are of a minor order. The inescapable conclusion is that impressive continuity exists with reference to economic and security values, or the practical goals of work.

Men who are unemployed are no more likely to stress security (r = -.01) and are virtually indistinguishable from employed men in their emphasis on economic rewards (r = .08), suggesting that unrealistic salary expectations are probably not implicated in their unemployment. Ethnic minorities are slightly more disposed to emphasize security (r = .10) and economic rewards (r = .14).

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[22] Davis, op. cit.

[23] David Gottlieb, Youth and the Meaning of Work (Washington: U.. Department of Labor, 1974).

There is a measurable gap between the importance men attach to security and economic values and their perceptions of their own access to these rewards. The gap is more evident for young workers, particularly with reference to security rewards. Disenchantment with access to the practical goals of work is not widespread, however. For both indexes--Economic Rewards and Security Rewards--the hypothetical "average" respondent says that these are "very important" values; he rates his own job as merely "good" with respect to these same rewards. And in both cases--in terms of security and economic rewards--young workers are somewhat less satisfied that their goals are being realized in their present jobs.

INTERPERSONAL WORK REWARDS

The impact of coworkers, or the general interpersonal climate describing the workplace, on work performance and satisfaction is one of the major themes of modern industrial sociology. The individual's social and psychological requirements often effectively compete with economic interests; as the Western Electric studies demonstrated over a generation ago, to maintain the esteem or good will of fellow workers, the individual is often prepared to forego, in some measure, his own immediate economic self-interest.[24]

Consistent with this well documented aspect of industrial social psychology, a substantial majority of American workers rate "having the respect of fellow workers" and "working around people you like" as being "very important" for job satisfaction (Table 6). The disparity between older and younger men in the importance they assign to the quality of the interpersonal climate of the work place is not statistically significant. At all age levels, majorities of men endorse the importance of social relationships for satisfaction.

While the importance of a positive interpersonal climate at the work place achieves high and generally equal levels of support, there

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[24] F. J. Roethlisberger and William J. Dickson, Management and the Worker (Cambridge, Mass.: Harvard University Press, 1939).

TABLE 6

INTERPERSONAL WORK VALUES AND JOB PERCEPTIONS BY AGE, INCOME AND LABOR FORCE STATUS (MEN EARNING LESS THAN $15,000 A YEAR WHO ARE NOT IN SCHOOL OR IN THE MILITARY)

Interpersonal Work Rewards		Percent Responding "Very Important" To Each Interpersonal Work Reward			Percent Rating Own Jobs "Excellent" With Respect To Each Work Reward	
		Age			Age	
		18-22	30-49		18-22	30-49
Having the respect of the people you work with		56.9	66.4		18.1	30.9
Friendly people to work with		68.2	67.9		29.7	34.9
Interpersonal Work Rewards Indexes	$\bar{X}$	7.12	7.17	$\bar{X}$	5.89	6.34
	SD	1.11	1.21	SD	1.37	1.26
	N	260	461	N	181	380
	t	0.63		t	3.86***	

***p < .001

is not an equivalent generality in the realization of this kind of interpersonal work climate. At all age levels, only a portion of the men who see this aspect of work as important also describe their present jobs as fully providing it. Once again, it is among the younger workers that this disparity between commitment to the value and its realization in their present jobs is the greatest.

For older workers, the disparity is smaller than we have observed in terms of other major values, such as meaningful activity, income and job security. However, given that a supportive interpersonal climate should be, at least theoretically, a "free resource," not dependent on the specific character of work--something that is, as it were, the gift of fellow workers--the fact of any disparity raises some interesting questions. Clearly, we still have much to learn about the factors determining the interpersonal climates that develop in specific work environments.

The greater disparity for younger workers between the level at which the interpersonal is viewed as important and what they find in their present jobs raises some additional questions. We noted earlier Coleman's argument that certain advantages follow the early integration of youth into adult society, particularly where the context of serious work is concerned. One such advantage, of considerable significance, was the presumed minimization of tendencies to develop an alienated self-image--a self-image drawn in isolation from, and ultimately hostile towards, the adult world. The age-linked disparities we have observed would suggest that involvement in the world of adult work (or with older adults within the world of work) does not necessarily eliminate this risk. Indeed, even for those who have learned to value the approval and respect of other, presumably older, workers, the experience of approval and/or respect does not automatically follow. Entry into the world of work, with the implication of at least a partial withdrawal from adolescent or youth ghettos, may actually lessen the risks of alienative responses to the adult world but it far from eliminates such risks. Further research might well focus on the kinds of entry strategies that maximize opportunities for winning respect and approval as against those which do not. Consistent with the other kinds of work values we have examined, acceptance of conventional values does not appear to be lacking among young workers; it is their realization that is uncertain.

SUMMARY

The dominant theme in our analysis has been that substantial and persistent continuity characterizes the present work values of younger and older men. We have noted very small but statistically significant differences in their values with reference to three of the five value indexes we considered--security values, economic values and the anti-work ethic. These differences provide a basis, albeit weak, for concluding that more youths compared to older workers, have abandoned traditional work values and that immediate self-interest is more likely to characterize their concerns. We believe that such conclusions would be irresponsible in view of the magnitudes of the differences we find. Despite differences, a majority of men at all ages share similar values regarding what is desirable in work.

An obvious difficulty confronts us with reference to the distinction between cohort and generational effects. Since these young men have matured during an historical period distinct from that conditioning the initial entry into the labor force of the older men, the modest disparities in values we observe may, in fact, mark an ongoing evolution in the work values of American men. Alternatively, with growing experience in the world of work, these young men may become fully indistinguishable from their older counterparts. Values are not formed in a vacuum. They are learned, tested and modified in the experiences of a lifetime. Continuity in experience carries the promise of continuity in values.

Throughout the analysis, we have noted the influence of two factors besides age on work values--ethnicity and employment status. Where the first-order correlations (controlling for age) implied that either of these factors conceivably accounted for at least 1% of the variance in values, we have noted that a causal relationship may exist. In no instance did employment status appear to substantially influence values (or vice versa). Thus, on the whole, unemployment experience among these men appears to be independent of their values.

Minority status does seem to influence values; it appears to diminish intrinsic work values, to increase the emphasis on economic and security rewards and to be associated with greater endorsement of the antiwork ethic. It should be recognized that the occupational niches of these minority men undoubtedly continue to deny them equal access to meaningful work, job security and equal pay. Moreover, the coefficients are very small, suggesting that among the yeomanry of the American labor force there is a single predominant climate of values and these have remained fairly traditional. If the subcultural experience is different, it is not markedly different with reference to work values. Subcultural differences might best be explored on the level of differences in labor force opportunity and experience.

The emphasis of minority men on the antiwork ethic is more substantial. The first-order partial correlation implies that minority status may account for as much as 4% of the variance in the antiwork ethic. The critical question--one that requires more detailed data than we have--is whether the content of work intervenes in the relationship between minority status and the antiwork ethic. Men locked into jobs that notably deprive them of access to meaningful job activity may come particularly to value antiwork rewards, what Becker has called "side bets."[25] Since minorities are more likely to hold such jobs, it may be the job rather than ethnic background that accounts for the correlation.

A second dominant theme emerged that was significantly and consistently related to age. There was a recurring pattern where relatively few men report full realization in their present jobs of aspects of work that they highly value. While not suggestive of massive distress or discontent, we are not provided with a picture of uniformly high levels of satisfaction. The discrepancy between ideal values and the realities of work experience is most extreme for the younger workers.

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[25] Howard S. Becker, "Notes on the Concept of Commitment," American Journal of Sociology, vol. 66 (July 1960), pp. 32-40.

This discrepancy may flow from several factors. It may reflect the impatience of youth who have not yet made their best bargain with the world of work. Alternatively, it may reflect differences in the intensities with which otherwise similar values are held.

Whether the potential for dissatisfaction will deepen or erode with time cannot be assessed using these data. The data unambiguously indicate, however, that there has been overwhelming continuity in the work values of contemporary American men. This, in turn, suggests that to the degree that patterns of labor force participation by younger workers has taken on aspects of the problematic, these can only be understood by a comprehensive exploration of the concrete labor force experiences of such young workers and the broader context of their values and life style commitments.

The question asked at the outset, "Do youth really want to work?" can now be at least partially answered. They appear to value work and to value it in ways not unlike their fathers and older brothers. Whether this translates into effective work careers obviously depends on the kinds of work and work rewards that are made available to them. The outcome may also depend on changes in values, opportunities and experiences in other sectors of life, sectors of life which we monitor even less well than we monitor the current work experience, which is not very well at all.

THE RELATIONSHIP BETWEEN YOUTH EMPLOYMENT AND FUTURE EMPLOYABILITY AND EARNINGS

BY: Wayne Stevenson

ABSTRACT

In making the transition from school to work most teenagers and young adults experience some periods of unemployment. The sporadic nature of youth labor force participation in conjunction with high turnover and the part-time nature of youth jobs no doubt contributes to the high incidence of unemployment observed among this age group. The probability of experiencing unemployment, however, declines rapidly with age, suggesting that it represents a fairly short-term transitional problem. In this paper it is shown that after controlling for related variables, early labor force status has a significant impact on subsequent employability and earnings. Jobless periods, particularly for out-of-school youth, constitute a loss which results in real disadvantage for years to come.

The 1970s have seen unemployment among teenagers (sixteen to nineteen years of age) and young adults (twenty to twenty-four of age) reach record proportions, with nearly one-half of all unemployed Americans from these age categories.* Roughly twenty percent of all teenage labor force participants were unemployed in 1977, with the rate among blacks reaching thirty-seven percent. In urban areas the rate among black teenagers is well over forty percent.[1] Furthermore, while an average of 3.4 million sixteen to twenty-four-year-olds were unemployed at any given time in 1976, the number experiencing some unemployment during the year is estimated to be three times as great.[2] The magnitude and persistence of the problem has placed youth unemployment in the forefront of labor market policy and has created considerable interest in the question of causes and consequences joblessness among the nation's youth.

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[1] Garth L. Mangum and Stephen F. Seninger, Coming of Age in the Ghetto: The Dilemma of Ghetto Youth Unemployment, a report submitted to the Ford Foundation, December 1977.

[2] Arvil V. Adams et al., The Lingering Crisis of Youth Unemployment, a report submitted to the E.W. Upjohn Institute for Employment Research, 1978.

The high incidence of youth unemployment can no doubt be attributed in large part to the process of transition from school to work. Folk[3] and Kalachek,[4] for example, argue that teenage entry and reentry into the labor force (which accounted for 70% of teenage unemployment in 1976) plus the part-time status of youth jobs combine to create highly unstable employment patterns. Teenagers account for a disproportionate share of job seekers and, according to Freedman,[5] change jobs and move in and out of the labor force with greater frequency than any other age group. This intermittent entrance and reentrance into the labor force results in less than one-fourth of all unemployed teens being job losers while over fifty percent of older unemployed workers left their last job involuntarily.

Another important characteristic of youth unemployment is that the situation improves with aging. As workers reach the age of twenty-five, labor force participation rises, work becomes predominantly full-time, and most significantly, unemployment rates fall (See Table 1). Thus, the high incidence of unemployment among youth is viewed by Kalachek,[6] Johnston and Backman,[7] and others as playing a functional role in

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[3] Hugh Folk, "The Problem of Youth Unemployment," in The Transition From School to Work: Processdings of the Princeton Manpower Symposium, May 9-10, 1968 (Princeton: Princeton University Press, 1968).

[4] Edward Kalachek, The Youth Labor Market, Policy Papers in Human Resources and Industrial Relations, No. 12 (Ann Arbor, Michigan: Institute of Labor and Industrial Relations, University of Michigan-Wayne State, 1969).

[5] Marcia Freedman, "The Youth Labor Market" in National Commission for Manpower Policy, From School to Work: Improving the Transition (Washington: Government Printing Office, 1976).

[6] Kalachek, op. cit.

[7] Johnston and Backman, The Transition from High School to Work: The Work Attitudes and Early Occupational Experience of Young Men (Ann Arbor, Michigan: The University of Michigan, 1973).

TABLE 1

UNEMPLOYMENT RATE BY AGE, SEX, AND RACE, 1976

	14-15	16-17	18-19	20-24	25-34	35-44	45-54	55-64	65+
Total	14.8	21.1	17.4	12.0	7.1	4.9	4.5	4.5	5.1
Males	16.2	21.4	17.6	12.0	6.2	4.1	4.0	4.2	5.2
White	13.7	19.7	15.5	10.9	5.6	3.7	3.7	4.0	4.8
Nonwh.	41.3	37.7	34.0	20.7	11.0	7.3	7.2	6.2	9.3
Females	13.1	20.7	17.3	11.9	8.5	6.1	5.2	4.9	5.0
White	10.3	18.2	15.1	10.4	7.6	5.8	5.0	4.8	5.3
Nonwh.	45.5	46.0	35.0	21.7	13.0	8.1	6.1	5.5	2.6

Source: U.S. Dept. of Labor, Employment and Training Report of the President, Employment and Training Administration, U.S. Gov't. Printing Office, Washington, D.C., 1977, Table A-19.

providing useful labor market experience. Frequent jobless periods and turnover aid new labor force entrants in learning effective methods of job search and in adjusting expectations to the realities of the labor market. It may even be the case that high turnover and the associated joblessness experienced by teenagers are consistent with the temporary, part-time employment desired by youth workers.[8] These observations, in combination with the apparent improvement over time, frequently lead to the conclusion that youth unemployment is a transitory problem experienced by most and not greatly hindering successful assimilation into the labor force. Theory and intuition suggest, however, that to be frequently unemployed during the early years deprives an individual of valuable work experience, information, skills and contacts and is likely to have injurious effects later on.

It is the purpose of this paper to document the long-run consequences of the youth labor market experience. This is done by following longitudinally one group of young men and women from their teenage years into early adulthood. This analysis demonstrates that early labor market experiences are related to subsequent measures of labor market success. Not only does youth joblessness identify a target group of individuals who are likely to have trouble later on, but after controlling for a number of personal characteristics, youth labor force status is seen to exert an impact of its own on subsequent experiences. These findings suggest that youth unemployment is more than a short-term problem and its consequences may include long-term problems of employability and earning capacity.

DATA AND METHODOLOGY

The conclusions drawn in this paper are based on analysis of the National Longitudinal Surveys of Young Men and Young Women.[9] The NLS data were designed to allow for measurement of sources of variation in the labor market experiences of each cohort. The data therefore include a broad sampling of economic, social, and attitudinal characteristics of the youth population. Labor force concepts and definitions are consistent with those employed in the Current Population Surveys.

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[8] Paul Osterman, "The Structure of the Labor Market for Young Men," working paper, Boston University, 1977.

[9] For a description of this data see Herbert Parnes, The National Longitudinal Surveys (Columbus, Ohio: Center for Human Resources Research, 1974).

The analysis described here is based on data for males and females who were sixteen to nineteen years of age in the initial survey year. Data were collected over a period of seven years beginning in 1966 for the men and in 1968 for the women. In the initial survey years over two thirds of these respondents were enrolled in school. By the final survey year, when those examined ranged in age from twenty-three to twenty-six years of age, less than 15% were still attending school. Furthermore, 90% of the males and 70% of the females were labor force participants, about 5% of whom were unemployed. So aside from recreation and family responsibilities, the major activity of most teenagers is school. On the other hand, by the time the cohorts range in age from twenty-three to twenty-six the dominant activity is work. Thus, the important years of the school to work transition are covered by the analysis.

YOUTH LABOR FORCE STATUS AND LATER EXPERIENCES

Many aspects of youth's labor market experience during the school to work transition have been well documented. Temporary, part-time work begins for most before school has been completed. Early work experience tends to be in occupations and industries associated with high turnover, low pay and a high incidence of part-time work. In contrast, employment patterns of those in their mid-twenties reflect fairly consistently those observed among adult workers.

Parnes and Kohen have shown, in a longitudinal analysis of 2,100 noncollege males, that movement up the occupational ladder correlates highly with education, work experience, and increased labor market experience.[10] The role of family background and other socio-economic status measures have been examined by Adams et al,[11] Hall and Kasten,[12] and Corcoran.[13] Race, sex, education, marital status, and region of residence seem to have the greatest and most consistent effect on early labor market success. The importance of entry level jobs is demonstrated by Ornstein.[14] What is not well documented, however, is the effect early labor market experience has on later employability and earning capacity.

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[10] Herbert Parnes and Andrew Kohen, "Labor Market Experience of Non-College Youth: A Longitudinal Analysis" in National Commission for Manpower Policy, From School to Work: Improving the Transition (Washington: Government Printing Office, 1976).

There is little surprise in the finding that labor force participation increases, unemployment declines, and earnings grow as individuals move from their teens into adulthood. While a large majority find employment, however, there is considerable variation in the stability, security, and rewards associated with the work. What is of interest is the extent to which unsatisfactory experiences at an early age are related to later labor market activity and success. Economic theory suggests that education and labor market experience are important determinants of labor force status and earnings.[15] So for those making the transition from school to work, time spent in school or working represents the acquistion of skills, experience, or contacts which can be expected to be beneficial later on. Being unemployed or out of the labor force while in school will have little effect as basic education is a good substitute for on-the-job training and work experience. Joblessness experienced while out of school, however, represents a serious loss which can be expected to result in relative disadvantage later on.

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[11] Adams et al., op cit.

[12] Robert E. Hall and Richard A. Kasten, "Occupational Mobility and the Distribution of Occupational Success Among Young Men," American Economic Review, vol. 66, No. 2 (May 1976), pp. 309-15.

[13] Mary Corcoran, Christopher Jencks, and Michael Olneck, "The Effects of Family Background on Earnings," American Economic Review, vol. 66, No. 7 (May 1976), pp. 430-35.

[14] Michael D. Ornstein, Entry Into The American Labor Force (Toronto: York University Press, 1976).

[15] See, for example, G.S. Becker, Human Capital (New York: National Bureau of Economic Research, 1964); and G. Hanoch, "An Economic Analysis of Earnings and Schooling," Journal of Human Resources, vol. 2 (Summer 1967), pp. 310-29.

The National Longitudinal Surveys of Young Men and Young Women allow for a comparison of youth labor market activity and success at a later stage. Even with the comprehensive data available it is not possible to recreate the work history of each individual. It is possible, however, to relate survey week labor market and school enrollment status with subsequent experience. While this does not isolate those with chronic or persistent labor market problems, it does fairly accurately reflect the activities of the youth population at any particular point in time and is consistent with Bureau of Labor Statistics methods of classification. Comparing later labor market activity and success provides considerable insight into the meaning and importance of the high teenage unemployment rate reported in recent years.

Table 2* shows the relationship between labor force status in the final survey year and that experienced during earlier periods. While 92.4% of the young men and 60% of the young women were in the labor force, the proportions change considerable depending on earlier experiences. Those out of school and out of work as teenagers are far less likely to be current labor force participants. For those currently in the labor force, the probability of being unemployed is much higher if the teenage period was spent both out of work and out of school. Current labor force participation is the highest for those who were employed as teenagers. As expected, being out of work but in school has a much smaller effect on subsequent employability than being out of work and out of school. Only for the women is teenage unemployment while in school related to later participation rates. Being out of the labor force while in school, however, has a negligible effect, Young adult labor force status is more closely correlated with later experiences. Labor force participa-

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*The following tables and portions of the corresponding discussions have been extracted with modification from Wayne Stevenson, "The Relationship between Early Work Experience and Future Employability," in Arvil V. Adams, et al., The Lingering Crisis of Teenage Unemployment, a report submitted to the W.E. Upjohn Institute for Employment Research, 1978.

TABLE 2

LABOR FORCE STATUS IN FINAL SURVEY YEAR BY EARLIER SCHOOL ENROLLMENT AND LABOR FORCE STATUS

Status and Age Per Survey Year	Final Survey Year (23 to 26 Years of Age)					
	Men			Women		
	Employed	Unemployed	Out of Labor Force	Employed	Unemployed	Out of Labor Force
First Survey Year (16 to 19 Years of Age):						
In school—						
Employed	92.2	5.1	2.7	67.8	8.4	23.8
Unemployed	92.0	8.0	0.0	51.4	6.8	41.9
Out of labor force	91.4	3.7	4.9	67.4	7.2	25.4
Out of school—						
Employed	95.2	1.7	3.1	60.4	6.1	33.6
Unemployed	89.7	6.9	3.4	42.3	8.5	49.3
Out of labor force	78.9	7.9	13.2	37.7	7.7	54.5
Fifth Survey Year (20 to 23 Years of Age):						
In school—						
Employed	95.4	3.3	1.3	91.7	1.7	6.6
Unemployed	100.0	0.0	0.0	57.1	14.3	28.6
Out of labor forcd	94.3	3.4	2.3	76.9	9.6	13.5
Out of school—						
Employed	95.2	2.9	1.9	72.2	6.7	21.1
Unemployed	80.0	9.3	10.7	49.5	13.8	36.7
Out of labor force	62.2	13.3	24.4	32.8	7.5	59.7
TOTAL	92.4	4.0	3.5	60.0	7.3	32.7

Source: National Longitudinal Surveys.

tion is considerably lower and the probability of being unemployed in the final survey year is higher for both young men and young women who were out of school and out of work as young adults twenty to twenty-three years of age.

Early school enrollment and labor force status are clearly correlated with later labor market activity. Table 3 shows that this carries over to differences in wage and salary income. Once again, youths out of school and out of work as teenagers or young adults carry this disadvantage with them into the early adult years. The most serious disadvantage is found among those who spent an earlier period out of school and out of the labor force. Current earnings for these individuals are about half the average for their race-sex cohort.

There appears to be little question that, on the average, those having difficult labor market experiences as youths are the same individuals who have difficulties later on. While many unemployed youths successfully move into well paying, permanent positions, many will not do so by the time they are in their mid-twenties and, as a result, face a real disadvantage as adult workers. Youths who are unemployed and out of the labor force and are also out of school define an important target population that can be expected to find labor force assimilation difficult. This is especially true if they are blacks or women.

THE NET EFFECT ON SUBSEQUENT EXPERIENCES

That youth labor force and school enrollment status is correlated with later labor market success does not necessarily suggest a causal relationship. The same factors contributing to early experiences may be operating later on as well. Whether or not the pattern remains the same after controlling for differences in background, education, and other factors is the issue addressed in this section.

Table 4 shows the results of multiple regression analysis designed to isolate those factors which explain differences in earnings of young adults who are out of school. The groups analyzed consist of young men and young women who were sixteen to nineteen years of age in the initial survey year and out of school in the final survey year. Earnings are observed seven years later when the group ranges in age from twenty-three

TABLE 3

MEAN EARNINGS BY PRIOR LABOR FORCE AND SCHOOL ENROLLMENT STATUS FOR AGING COHORTS OF YOUNG MEN AND YOUNG WOMEN WHO WERE OUT OF SCHOOL IN FINAL SURVEY YEAR

Status and Age Per Survey Year	Final Survey Year (23 to 26 Years of Age)			
	Men		Women	
	White	Black	White	Black
Grand Mean	7553.59	5648.50	3646.48	3469.14
First survey year (16 to 19 years of age):				
In school—				
Employed	7784	5797	4188	4295
Unemployed	6858	5644	3465	3224
Out of labor force	6939	5564	4292	3803
Out of school—				
Employed	7423	5937	3308	3791
Unemployed	6816	4077	2226	3120
Out of labor force	4676	3921	1962	1879
	F=3.25***	F=1.60	F=10.81****	F=5.21****
Fifth survey year (20 to 23 years of age):				
In school—				
Employed	7988	6036	5695	5985
Unemployed	8036	4550	5344	4118
Out of labor force	6309	3785	4710	4806
Out of school—				
Employed	7918	6065	4744	4757
Unemployed	6289	5124	2753	2670
Out of labor force	3959	2084	1222	1530
	F=7.55****	F=5.14****	F=51.09****	F=27.61****

Significance Levels: 10% (*) 5% (**) 1% (***) 0.1% (****)

Source: National Longitudinal Surveys

TABLE 4

CORRELATES OF WAGE AND SALARY INCOME IN FINAL SURVEY YEAR FOR OUT-OF-SCHOOL YOUNG MEN AND YOUNG WOMEN[a]

Explanatory Variables	Males		Females	
	White	Black	White	Black
Age	338.80***	235.46*	-95.99	296.00**
	(2.78)	(1.41)	(0.94)	(2.29)
Years of School Completed	227.67****	170.24**	357.62****	404.69****
	(3.41)	(1.85)	(6.47)	(5.64)
Socioeconomic Status	4.17	18.12*	-1.33	9.36
	(0.54)	(1.60)	(0.20)	(1.20)
Married	1909.44****	1987.58****	-1846.89****	-431.93*
	(6.86)	(5.43)	(7.37)	(1.49)
Living in SMSA	959.97****	678.10*	na	na
	(3.59)	(1.59)		
Labor Market Knowledge	44.90**	10.82	250.15****	207.82***
	(2.08)	(0.38)	(3.48)	(3.05)
Training[b]	1546.50****	1933.76****	1569.69****	2339.04****
	(5.33)	(4.12)	(6.44)	(6.72)
R^2 (adjusted)	0.13	0.19	0.18	0.29
Degrees of Freedom	1008	299	980	384

[a] Wage and salary income reported in final survey year for those who were sixteen to nineteen in initial survey year.

[b] Dichotomous variable assuming value 1 for those who received training and reported using it on the job and zero otherwise.

Significance Levels: 10% (*) 5% (**) 1% (***) 0.1% (****)

Source: National Longitudinal Surveys

to twenty-six. Each cohort is partitioned on the basis of race, an element whose effect on earnings is well known.

Stratified by race and sex, the regression equations explain between 13% and 29% of the variation in annual wage and salary income. Age, education, and marital status have significant effects upon earnings. Earnings tend to rise with age, even within the small range represented here, and also increase with each year of school completed. The is true for blacks as well as for whites.

Socio-economic status does not appear to have its expected effect on earnings after one controls for education and labor market knowledge (which is highly correlated with background, education, and earnings). So, while their separate effects are difficult to isolate, education, background, and labor market information (or general intelligence) combine to influence earnings significantly.

Other factors demonstrating a predictable effect are marital status and region of residence. For men, being married is associated with nearly $2,000 per year in additional earnings. Women, on the other hand, earn considerably less if they are married. It is also of interest that men living in a city or its suburbs can expect to earn more than comparable rural residents (these statistics are not available for women).

One additional variable is included: in each survey year respondents were asked whether any training was received in addition to formal schooling, and whether the training was ever used on the job. With this information it is possible to isolate those individuals who received and used training during the school to work transition. One out of three respondents indicated that he or she had received such training. Blacks were less likely than whites to participate in training, and young men less likely than young women.

The differences in earnings associated with training used on the job are substantial, ranging from about $1,500 per year for whites to more than $2,300 for black women. Along with the data on years of school completed, this finding for out-of-school youth is highly significant in policy terms for those concerned with the low earnings of youth and the earning differences by race and sex. Although these results do not distinguish among specific training programs, they do indicate that when training is tailored to the needs of the labor market as well as the individual, reflected in use on the job, the gains are generally substantial and lasting. More importantly, these gains are present for young men and young women, black and white.

Controlling for these correlates of wage and salary earnings, one can also determine how the early labor market experiences of youth affect subsequent earnings. At issue is whether individuals with roughly equivalent backgrounds but different early labor market experiences can expect subsequent earnings to differ in a predictable manner. Table 5 allows such comparisons after adjusting for differences in age, education, socioeconomic status, marital status, and place of residence. The observations are stratified by race and sex to account for these differences. The results are based Multiple Classification Analysis, a technique which combines linear regression estimates and analysis of variance to test for significant differences in mean values of a dependent variable after controlling for the effects of other variables included in the model.

The differences in the adjusted means are not as pronounced as the differences for unadjusted means reported in Table 3, but the same general patterns emerge. Again, being without a job while out of school has a significant adverse effect on subsequent earnings. The impact is more pronounced when it occurs between the ages of twenty and twenty-four, but teenage labor force status is also related to subsequent wage and salary earnings.

Whether for young men or young women, black or white, time spent out of school and out of the labor force represents a loss of experience that is associated with a clear earnings disadvantage later on. While the effect is not so great, being unemployed during the school to work transition also has an adverse effect. This is particularly true if the spell of unemployment comes while the person is out of school. Those who experience unemployment while in school can expect to earn less on an average than those successfully employed while in school or out of the labor force and devoting full time to school activities.

The differences by race and sex are even greater. Among young men,

TABLE 5

ADJUSTED MEAN EARNINGS BY PRIOR LABOR FORCE AND SCHOOL ENROLLMENT STATUS FOR AGING COHORTS OF YOUNG MEN AND YOUNG WOMEN WHO WERE OUT OF SCHOOL IN FINAL SURVEY YEAR

Status and Age per Survey Year	Final Survey Year (23 to 26 Years of Age)			
	Men		Women	
	White	Black	White	Black
Grand Mean	7621.90	5713.46	3694.66	3518.39
First Survey Year 16 to 19 Years				
In School				
Employed	7948	5989	3936	4004
Unemployed	7445	5852	3246	2532
Out of labor force	7546	6095	3944	3691
Out of School				
Employed	7481	5596	3793	3790
Unemployed	7287	4857	2871	2988
Out of labor force	5834	3940	2871	2855
	F=2.36**	F=2.30**	F=11.045****	F=5.18***
Fifth Survey Year 20 to 23 Years				
In School				
Employed	7565	4334	4720	4728
Unemployed	6647	3051	4530	3789
Out of labor force	6649	3407	3715	3808
Out of School				
Employed	7972	6244	4792	4743
Unemployed	6674	4928	2684	2905
Out of labor force	4886	3787	1821	1860
	F=7.50****	F=4.01***	F=52.26****	F=29.25***

[a] Adjusted to account for differences in education, socioedonomic status, marital status, age, and living in an SMSA.

Significance Levels: 10% (*) 5% (**) 1% (***) 0.1% (****)
Source: National Longitudinal Surveys

out of school black youths are more seriously affected by adverse early labor market experiences. Among young women, however, no differences by race are apparent. Young women, black and white, are more seriously affected by adverse early labor market experiences than young men These findings sharply contradict the thesis that youth unemployment is a phase through which every youth passes, with no long-term adverse consequences.

CONCLUSIONS

The relationship demonstrated here between early labor market status and subsequent employment experience provides useful information for future policy making. Youth joblessness (particularly for those out of school) represents not only an immediate loss but one which persists throughout the period of school to work transition and into the early adult years. Thus, job creation through expansionary policy as well as targeted youth programs has more than a short-term impact. Programs should, however, provide incentives for school completion. Job creation may be counterproductive if opportunities are attractive enough to encourage discontinuation of school activities.

While simple job creation can be expected to ease the school to work transition, the results also suggest that the impact can be magnified through training. The maintenance of youth jobs which also involve the acquistion of useful skills can be expected to improve opportunities greatly for years to come.

In short, any policies which have an impact on the labor market opportunities of youth (such as a lowering of the minimum wage for teenagers) should be analyzed with long run consequences in mind. Any reduction in youth unemployment (particularly among out-of-school youth) can be expected to ease the transition to the labor force and to generate benefits now and for the future.

EMPLOYMENT AND EARNING PATTERNS: THE DYNAMICS OF CHANGE

By: David J. Farber

ABSTRACT

This paper attempts to document the thesis that the change in earning capacity is governed by certain principles, is determinative in nature, and can be projected on the basis of earning patterns in a five-year base period.* These earning patterns are holistic in nature, and can be quantified by the rate of earning cumulation in the base period.

The change in manyears of employment and in earnings from 1958 to 1965-69, for each of eight age groups -- whether of the members of the Social Security Administration's Continuous Work History Sample, or of the 1964 MDTA institutional trainees -- correlates significantly with the rate of earning cumulation in 1958-62. This relationship holds true for men and women of each race when age or education are held constant, and when the CWHS and trainee samples are coalesced into a single population.

The analysis is based on actual earning histories as disclosed by Social Security records for the 1958-69 period, and represents one of the few instances -- perhaps the only instance -- in which changes in employment and earnings of the identical individuals have been systematically traced for an extended period of years.

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* The opinions expressed in this paper are the author's, and do not necessarily represent the views of the agency in which he is employed.

EMPLOYMENT AND EARNING PATTERNS: THE DYNAMICS OF CHANGE

Do federally-sponsored training programs enhance the earning capacity of program participants? As one considers the analytical apparatus which so many economists bring to bear on this issue, its intellectual foundations, in my view, require increasing scrutiny. Consider, for example, three typical statements culled from the writings of several of the more prolific economists who have been involved in the evaluation of training programs. Randomly selected control groups are prerequisites for scientific evaluations of training programs. Childless women have longer working lives than mothers. Lifetime earnings of college graduates exceed those of individuals with lesser schooling.

These statements share a common characteristic; they lack any empirical foundation. Not a single training program of any significant size has been evaluated on this basis, and hence this allegation must be relegated to the realm of untested opinion.[1] Tables of working life, like their counterpart tables of lifetime earnings of lifetime income, are essentially extrapolations of labor force status or earning levels in a given base year, from a

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1. A panel of the National Academy of Sciences found "only one evaluation study, a case study of black girls in an NYC program in Cincinnati, Ohio, which used a true experimental design with random assignment of a study sample to an experimental and control group." Even this small study was flawed by "nonresponse bias through attrition of both controls and experimentals." Final Report of the Panel on Manpower Training Evaluation, National Academy of Sciences, Washington, D.C., January 1974, pp. 12-13.

given age to retirement. They do not represent the actual labor market experience of men and women, but are constructs which assume merely the absence of any change in the course of a lifetime.[2]

The static concepts and measures used in constructing these tables are nonetheless precisely the same as those used by most economists to estimate the change in earnings attributable to participation in training programs.[3] Their means of measurement, I suggest, contradict their purpose.

Purpose and Theme

To demonstrate that changes in employment and earnings do occur during the aging process, that they are determinative in nature, and are governed by certain principles is the overarching purpose of my paper. Based on the empirical evidence disclosed by several hundred thousand actual employment and earning histories, it will be seen that such changes represent a continuous, consistent and predictable process which proceeds through time. Over an extended period of years, I shall demonstrate changes in employment and earnings are

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[2] The 1970 tables of working life indicated that "most working life tables... are based upon part or current rates of mortality and labor force participation -- in this case, 1970, but are often used to infer the length of future working life... In the case of women, work life expectancies are those anticipated if their martial status does not change during the rest of their lifetime." Special Labor Force Report 187, "Length of Working Life for Men and Women, 1970." Bureau of Labor Statistics, U.S. Department of Labor, February 1976, pp. A-2 and A-3. These static assumptions are equally characteristic of tables of lifetime earnings or income. Typical is the table of lifetime income for men, published by the Bureau of the Census. "Lifetime income estimates," the table notes, "are a measure of the incomes that could be expected by members of specific education groups in a lifetime....if the mean income estimates by age and education, and life expectancy rates did not change from those existing in the reference year, e.g., 1972." Consumer Income, Series P-60, No. 92, March 1974, Bureau of the Census, U.S. Department of Commerce.

[3] It is interesting that a recent volume which summarizes more than 200 evaluations of training programs faithfully reflects the fact (continued on next page)

outgrowths of, and are correlated and commensurate with, four basic patterned rates of earning cumulation which characterize the initial segment of that period.

This thesis is historical and developmental in character, and longitudinal in nature. An individual first entering the labor market, it posits, offers to an employer the attributes, aptitudes and skills he has developed from infancy through adolescence to adulthood--the product of his history. His labor market experiences, thereafter, represent the outgrowth of his history--his past-- as it interacts with the demand for his services in the labor market of the present. From the convergence and resolution of these two forces, there evolve a multitude of earning patterns which increasingly differentiate the labor force--whether men or women, blacks or whites, the older or the younger, the more or the lesser schooled, the disadvantaged or the more fortunate. And because these earning patterns reflect the interactional effects of all the forces--known and unknown-- responsible for the change in earning capacity, they are continuous in character, and are cumulatively and increasingly determinative in their effects.

Four Earning Patterns

Although earning patterns may be virtually numberless, they may all be reduced to four basic types. Assuming that individuals seek to maximize their earnings within a given time span, we may initially distinguish between workers at two extremes of a continuum of earning patterns. At each extreme are those whose annual earnings increase or decrease during a five year base period. The first, we characterize as RISERS (R), the second as DECREASERS (D). Intermediate

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(continued from previous page)
that in none of these evaluations is the measurement of the change of earnings considered a problem. Indeed, the index to the entire colume contains no item which refers to "change," or to its measurement. (Perry, Anderson, Rowan and Northrup, The Impact of Government Manpower Programs, The Wharton School, University of Pennsylvania, 1975.)

between these two are the MIXERS (M)--those whose annual earnings both increase and decrease during the five year base period. The remaining pattern group--the CONSTANTS (C)--includes those men and women whose annual earnings neither increased nor decreased during the five year base period.[4]

Each of these purely normative descriptors is quantified or indexed by a characteristic Cumulative Earning Rate--the CER. This measure is calculated by dividing the cumulative earnings of an individual for the last four years, by the first year, of the five year base period. The resulting ratio, of course, can be converted readily to a compound annual rate of earning cumulation. For present purposes, however, such a conversion is not necessary, but for the sake of convenience we shall refer to the CER as the Cumulative Earning Rate.

Since the histories discussed here are taken from Social Security records of the identical individuals, periods of nonemployment are necessarily reflected in the earning patterns. Thus, earning patterns, and their index, the CER, are sensitive not merely to the level of earnings, but to changes in earnings resulting from the effects of nonemployment or underemployment. This means that the pattern concept reflects the organic relationship between employment and earnings which, as we shall see, permits a realistic evaluation of the change in earning capacity.

CHANGE AS A CONTINUOUS PROCESS

Concepts and Measures

For many years, perceptive economists have recognized that measurement of change involves concepts and methods which differ radically from the mensuration of statics. Alfred Marshall, for example, recognized this distinction, and it has been rediscovered and reiterated

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4. For classification purposes increase or decreases in annual earnings were considered significant when they exceeded $100.

by contemporary economists since his time--by Selma Goldsmith, Joan Robinson, Wladimir Woytinsky, and others as well.[5] Recurringly, economists have been reminded that

> "Following Joan Robinson's stricture that it is most important not to apply theories obtained from the analysis of differences to situations of change (or at least to be aware of the act of faith involved in doing this) modern writers have usually been most careful to stress that their analysis is essentially

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[5] Alfred Marshall clearly distinguished between static and dynamic measures and concepts. When, he wrote, "we take a man as he is, without allowing time for any change... the marginal utility of a thing to him diminishes steadily with every increase in his supply." This principle, he warns, is only contingently valid. "There is an implicit condition in this law which should be made clear. It is that we do not suppose time to be allowed for any alteration in the character or tastes of the man himself. It is therefore no exception to the law that the more good music a man hears, the stronger is his taste for it likely to become... (In this latter instance) our observations range over some period of time; and the man is not the same at the beginning as at the end of it." (Alfred Marshall, Principles of Economics, eighth Edition, MacMillan and Co., Limited, London, 1946, p. 94). Mrs. Goldsmith noted that longitudinal analysis--in which the histories of the identical individuals are traced for a succession of years--is the appropriate means of measuring change. "When we compare income shares of a given quintile... in two periods," she wrote, "we are not comparing what has happened to an identical group of families, because the families comprising the quintile may be quite different in the two periods..." In interpreting the change in the income share of the top quintile (for example), ... over say a five-to-ten-year time span, it would be extremely helpful to know the extent to which the families comprising the top sector differed in the terminal periods." (Selma Goldsmith, "Changes in the Size Distribution of Income," American Economic Review, May 1957, p. 511). Woytinsky was aware that longitudinal analysis of earnings would disclose changes which would differ substantially from findings based on cross-sectional wage data. Writing in 1943, he suggested that if "it were possible to follow the record of real earnings of an average man throughout his whole lifetime... his earnings history would show ups and downs very different from those of the recorded trend in prevailing level of wages..." W.S. Woytinsky, "Income Cycle in the Life of Families and Individuals," Social Security Bulletin, June 1943 p. 8.

> the comparison of different... situations one with another and that they are not analyzing processes."[6]

For the measurement of the change in earning capacity, the conceptual and methodological consequences of this central distinction are immense. They affect our understanding of the process of change, and the validity and interpretation of all assessments of such changes. This is true primarily because the longitudinal measures needed for the analysis of the change in earnings require that we view earning levels at any given moment of time within the context of a continuous series of changes which have occurred in the past, and which will proceed into the future.

Earning Patterns and Earning Levels (Table 1)

The insights into the process of change which such a time perspective permits--and the longitudinal measures required to understand that process--may be demonstrated by an analysis of the actual earning histories of more than 5,200 men and women in the 1958-69 period. Initially, let us consider the earnings of more than 1,900 of them. All were twenty to twenty-four years of age in 1964, all participated in the 1964 MDTA Institutional training program, and all were either RISERS or MIXERS during the 1958-62 base period. (See Chart 1.)

For both pattern groups, average annual earnings as disclosed by their Social Security records were well belwo the maximum taxable earnings limit in each year during the 1958-62 base period. These specially selected histories also reveal one additional characteristic. In each of the years of the base period, average annual earnings of the RISERS were very much lower than those of MIXERS. In 1965-69, however, (and in each year of the period), there was a drastic reversal of positions. The RISERS earned from 1.7 to 6.7 times as much

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[6] G.C. Harcourt, "Some Cambridge Controversies on The Theory of Capital." Journal of Economic Literature, June 1969, p. 387.

CHART 1

PATTERNS OF THE RISERS AND THE MIXERS, 1958-62

Pattern 1958-62	1958	1959	1960	1961	1962	1965-69
			MALE WHITE			
R	$ 89	$ 269	$ 578	$1011	$1740	$29,453
M	562	1262	1945	2377	2579	17,121
R/M	.158	.213	.297	.425	.676	1.720
			MALE NEGRO			
R	$ 49	$ 174	$ 460	$ 813	$1585	$26,120
M	481	1462	2150	2404	2056	10,774
R/M	.102	.119	.214	.338	.771	2.424
			FEMALE WHITE			
R	$ 14	$ 47	$ 180	$ 556	$1443	$17,753
M	286	940	1832	1973	2010	2,656
R/M	.049	.050	.098	.281	.718	6.684
			FEMALE NEGRO			
R	$ 7	$ 38	$ 125	$ 335	$1194	$17,668
M	643	883	1007	1672	1683	3,498
R/M	.013	.043	.124	.200	.709	5.051

as the MIXERS.

The earning histories of these 1,900 youthful RISER and MIXER trainees are summarized in Table 1, as are those of 3,300 additional trainees who were twenty-five to fifty-nine years of age in 1964. In all these instances, average annual earnings of the RISERS were lower than those of the MIXERS in each year of the 1958-62 period. And in each year of the 1965-69 period, RISER earnings exceeded those of the MIXERS.

Conventional cross-sectional analysis cannot account for this drastic reversal of earnings of the RISERS and MIXERS. Primarily, this is true because it isolates the earning level at a given moment of time from the continuing process of change of which it is a product. Viewed longitudinally, however, the turnaround is neither exotic nor surprising, and is readily understandable.

Initially, it is useful to think of the earning histories of these RISERS and MIXERS in terms of earning differentials. For each of the age groups, the R/M line indicates that despite their lower earnings in 1958-62, RISERS were increasing their earnings at a faster rate than the MIXERS. Among the twenty to twenty-four-year-old female blacks, for example, RISERS earned 1% as much as MIXERS in 1958, 4% as much in 1959, 12% as much in 1960, 20% as much in 1961, and 71% as much in 1962. The identical erosion of the RISER-MIXER differential also occurred among the trainees in each of the seven older age groups. And in each of these instances, too, in 1965-69, RISER earnings exceeded those of the MIXERS by substantial amounts.

Continuity of Change: The CER (Table 2)

The earning patterns of these men and women may be conveniently indexed by their respective rates of earning cumulation during 1958-62. For each age group, the Cumulative Earning Rate for the period--the CER--was very much higher for RISERS than MIXERS. This was

TABLE 1

SELECTED 1964 MDTA-INSTITUTIONAL TRAINEES WHO WERE RISERS OR MIXERS IN 1958-62: THE 1958-62 CER AND THE CHANGE IN EARNINGS FROM 1958 TO 1965-69

AGE IN 1964	PATTERN 1958-62	CER 1958-62	1958	1958-62	1965-69	1965-69 ÷ 1958	CER 1958-62	1958	1958-62	1965-69	1965-69 ÷ 1958	CER 1958-62	1958	1958-62	1965-69	1965-69 ÷ 1958	CER 1958-62	1958	1958-62	1965-69	1965-69 ÷ 1958
Total				MALE WHITE					MALE NEGRO					FEMALE WHITE					FEMALE NEGRO		
20-24	R	30.427	$ 89	$ 3687	$29,453	330.932	61.877	$ 49	$ 3081	$26,120	533.061	159.000	$ 14	$ 2240	$17,753	1268.071	241.714	$ 7	$ 1699	$17,668	2524.000
	M	24.524	562	8725	17,121	30.466	16.781	481	8553	10,774	22.399	23.618	286	7041	2,656	9.287	8.157	643	5888	3,498	5.440
	R/M		.158	.423	1.720			.102	.360	2.424			.049	.318	6.684			.011	.288	5.050	
25-29	R	8.984	707	7059	29,742	42.068	10.118	484	5381	26,178	54.087	18.859	191	3793	17,472	91.476	20.987	163	3584	18,101	111.049
	M	5.569	1609	10539	15,710	9.763	6.0[illegible]	1429	10054	12,693	8.882	5.296	1418	8928	5,503	3.881	6.236	1193	8633	7,464	6.256
	R/M		.439	.670	1.893			.339	.535	2.062			.135	.425	3.175			.137	.415	2.425	
30-34	R	21.616	146	3302	22,160	151.180	35.180	50	1809	22,734	454.680	21.619	120	2723	19,723	164.358	12.893	234	3251	19,103	81.637
	M	4.637	1841	10378	12,533	6.807	4.826	1732	10093	10,019	5.784	5.026	1615	9730	6,572	4.069	5.455	1405	9067	5,411	3.851
	R/M		.079	.318	1.768			.029	.179	2.269			.074	.280	3.001			.166	.359	3.530	
35-39	R	40.853	68	2846	21,832	321.059	7.733	442	3860	17,704	40.054	37.682	63	2437	20,041	318.111	1203.500	2	2409	19,041	9520.000
	M	4.075	2056	10426	10,424	5.080	3.859	2053	9977	9,148	4.456	4.350	1748	9352	6,492	3.714	4.334	1807	9639	4,368	2.417
	R/M		.033	.273	2.094			.215	.387	1.935			.036	.261	3.087			.001	.250	4.359	
40-44	R	14.066	288	4339	21,583	74.941	9.455	167	1746	22,047	132.018	20.031	128	2692	18,983	148.304	32.130	92	3048	16,560	180.000
	M	4.063	3072	15553	12,219	3.978	4.177	1760	9112	7,784	4.423	4.506	1648	9075	5,732	3.478	4.971	1810	10807	6,280	3.470
	R/M		.094	.279	1.766			.094	.192	2.832			.078	.297	3.312			.051	.282	2.637	
45-49	R	9.178	343	3491	23,395	68.207	13.063	111	1561	17,234	155.261	59.767	43	2613	18,261	424.674	8.094	603	5484	19,286	31.983
	M	3.246	2124	9826	7,852	3.697	4.198	1944	10110	8,358	4.299	4.778	1769	10222	6,353	3.591	3.537	2376	10781	7,284	3.066
	R/M		.161	.355	2.979			.057	.154	2.062			.024	.256	2.874			.254	.509	2.648	
50-54	R	13.773	287	4240	19,221	66.972	9.110	299	3023	13,695	45.803	16.113	202	3457	16,811	83.223	8.277	418	3878	12,191	29.165
	M	3.696	2180	10238	7,414	3.401	3.657	2260	10528	5,304	2.347	4.437	1800	9786	6,540	3.633	3.932	2228	10990	3,991	1.791
	R/M		.132	.414	2.593			.132	.287	2.582			.112	.353	2.570			.188	.353	3.055	
55-59	R	10.869	382	4534	18,098	47.377	11.232	392	4795	11,634	29.678	17.487	230	4252	20,773	—	—	—	—	—	—
	M	4.006	3131	15673	9,489	3.030	4.737	2654	15366	9,336	3.517	4.022	2114	10616	5,780	—	—	—	—	—	—
	R/M		.122	.289	1.907			.148	.314	1.246			.109	.400	3.594						

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TABLE 2

SELECTED 1964 MDTA INSTITUTIONAL TRAINEES WHO WERE RISERS OR MIXERS IN 1958-62: THE 1958-62 CUMULATIVE EARNING RATE AND THE CHANGE IN EARNINGS, 1958 TO 1965-69

AGE IN 1964	PATTERN 1958-62	CER 1958-62	1965-69 ÷ 1958	CER 1958-62	1965-69 ÷ 1958	CER 1958-62	1965-69 ÷ 1958	CER 1958-62	1965-69 ÷ 1958	r=*
		MALE WHITE		MALE NEGRO		FEMALE WHITE		FEMALE NEGRO		
20-24	R	40.427	330.932	61.877	533.061	159.000	1268.071	241.714	2524.000	.991
	M	14.524	30.466	16.781	22.399	23.618	9.287	8.157	5.440	
25-29	R	8.984	42.068	10.118	54.087	18.859	91.476	20.987	111.049	.982
	M	5.549	9.763	6.031	8.882	5.296	3.881	6.236	6.256	
30-34	R	21.616	151.780	25.160	120.635	21.619	164.358	12.893	81.637	.954
	M	4.637	6.807	4.826	5.784	5.024	4.069	5.455	3.851	
35-39	R	40.853	321.059	7.733	40.054	37.682	318.111	1203.500	9520.000	.999
	M	4.075	5.080	3.859	4.456	4.350	3.714	4.334	2.417	
40-44	R	14.066	74.941	9.455	132.018	20.031	148.304	32.130	180.000	.885
	M	4.063	3.978	4.177	4.423	4.506	3.478	4.971	3.470	
45-49	R	9.178	68.207	13.063	155.261	59.767	424.674	8.094	31.983	.979
	M	3.626	3.697	4.198	4.299	4.778	3.591	3.537	3.066	
50-54	R	13.773	66.972	9.110	45.803	16.113	83.223	8.277	29.165	.993
	M	3.696	3.401	3.657	2.347	4.437	3.633	3.932	1.791	
55-59	R	10.869	47.377	11.232	29.678	17.487	90.317	-	-	.973
	M	4.006	3.030	4.737	3.517	4.022	2.734			
		r= .987 Sig 1%		r= .947 Sig 1%		r= .991 Sig 1%		r= .997 Sig 1%		

*Sig at 1% unless otherwise indicated

true despite the lower annual earning levels of the RISERS in each year of the period.

If, as our thesis suggests, the change in earnings is a continuous and consistent process, then the 1958-62 CER should be measurably related to the change in earnings from 1958 to 1965-69. And indeed, the correlation coefficients do reveal a statistically significant relationship between these two variables for each sex-race group as a whole (r varies from .94 to .99). At least 88% of the change in earnings from 1958 to 1965-69 may be explained by the rate of earning cumulation in the 1958-62 base period.

While this holds true for each sex-race group (two paired observations for the eight age cohorts) the relationship is equally firm within each age group, when the eight paired observations are coalesced and the sex and race designations are ignored. For the twenty to twenty-four year olds, for example, more than 98% of the change in earnings from 1958 to 1965-69 may be explained by the CER in 1958-62. And that relationship is also significant for each of the successively older age groups, as shown in Table 2.

Earning Patterns and Employment Changes

Traditionally, economic data on employment and earnings are published on a dichotomous basis. The Bureau of Labor Statistics and the Bureau of the Census, for example, publish one set of data on employment, and another on earnings.

Consistent with this convention, I shall consider first the change in man years of employment, and the principles which appear to govern such changes.

Throughout the discussion, primary reliance will be placed on an analysis of the labor market experiences of a 0.1% sample of 49,245,000 members of the Social Security Administration's Continuous Work History Sample (CWHS)--a random sample of individuals with earnings of $1 or more in 1964 from jobs covered by the Social

Security system. To further test the validity of my hypothesis, I shall also refer to CWHS data for other time periods, and to the histories of participants in a number of training programs for the same time periods as well.

The employment changes of these individuals may be described conveniently in the form of an Employment Ratio (ER). This measure reflects the ratio of man years of gainful employment to the number of calendar years in a given span of years. During a period of five calendar years, for example, individuals with earnings in two years have an ER of .4000 (2/5); in three years, an ER of .6000 (3/5); in four years, an ER of .8000 (4/5); and so on. The ER measure, therefore, is consistent with the pattern concept, since it is affected adversely or positively by the continuity of man years of gainful employment during any given span of years.

CWHS: ER Changes (Table 3)

The employment history summaries of the 49,000 CWHS members are of interest for several reasons. While restricted to employment covered by Social Security, they are remarkably consistent with respect to the experiences of both men and women, whether white or black. Unlike Tables of Working Life which assume the absence of change from entry into the labor force to retirement, the experience of all the CWHS members indicates that changes in the level of employment do occur during the aging process.

When classified by earning patterns in 1958-62--RISERS, MIXERS, and DECREASERS--these changes are also marked by a singular symmetry. Among those twenty to twenty-four years of age in 1964, for example, there is a marked difference between the 1958 and 1958-62 ER level of RISERS and MIXERS. Throughout the 1958-62 base period, the RISER men and women of each race had fewer man years of employment than the MIXERS. In 1965-69, however, one witnesses a reversal in position. The ER of the RISERS exceeds that of the MIXERS, a

TABLE 3

TABLE 3 - CWHS MEMBERS WHO WERE RISERS, MIXERS, OR DECREASERS DURING 1958-62: THE 1958-62 CUMULATIVE EARNING RATE AND THE CHANGE IN MAN YEARS OF EMPLOYMENT (ER) FROM 1958 TO 1965-69, BY SEX, RACE AND AGE IN 1964

AGE IN 1964	PATTERN 1958-62	Number	CER 1958-62	1958	1958-62	1965-69	1965-69 ÷ 1958	Number	CER 1958-62	1958	1958-62	1965-69	1965-69 ÷ 1958	Number	CER 1958-62	1958	1958-62	1965-69	1965-69 ÷ 1958	Number	CER 1958-62	1958	1958-62	1965-69	1965-69 ÷ 1958
Total		N= 29 849		MALE WHITE				N= 3388		MALE NEGRO				N= 14084		FEMALE WHITE				N= 1924		FEMALE NEGRO			
20-24	R	2677	31.196	.2450	.6242	.9604	3.920	326	58.840	.1411	.5392	.9429	6.682	1523	52.891	.1464	.3424	.7213	4.926	148	55.352	.0743	.4040	.8148	10.996
	M	1863	13.625	.5373	.8030	.9480	1.764	206	13.118	.4660	.7524	.9252	1.985	986	13.931	.4604	.7146	.6987	1.517	103	24.614	.3106	.6155	.7825	2.519
	D	24	1.603	1.0000	.5916	.8416	.842	7	1.638	1.0000	.5142	.8571	.857	23	0.596	.9130	.4956	.5565	.607	3	1.069	1.0000	.5333	.7333	.733
25-29	R	1655	7.238	.8785	.9440	.9789	1.114	179	7.768	.7430	.8871	.9664	1.300	562	8.076	.5978	.7701	.7793	1.303	77	13.105	.3506	.6753	.9090	2.592
	M	2401	5.559	.9250	.9430	.9486	1.025	330	5.866	.8787	.9115	.9206	1.047	981	4.896	.8287	.8440	.7388	.891	196	5.587	.7448	.8061	.8612	1.156
	D	49	1.590	1.0000	.6755	.8326	.833	10	0.757	1.0000	.4800	.9200	.920	98	1.010	1.0000	.4775	.6959	.696	17	2.504	1.0000	.6941	.6823	.682
30-34	R	2122	5.381	.9344	.9705	.9788	1.047	175	5.990	.8628	.9314	.9611	1.113	504	6.888	.5376	.7313	.8488	1.578	94	10.291	.4042	.6617	.8510	2.105
	M	1638	4.723	.9407	.9434	.9427	1.002	312	4.845	.9102	.9205	.9326	1.024	825	4.554	.7866	.8363	.8070	1.025	148	4.774	.8040	.8243	.8094	1.006
	D	45	1.892	1.0000	.6888	.8488	.849	15	2.344	1.0000	.8133	.7733	.773	71	0.862	1.0000	.4676	.6788	.679	8	1.313	1.0000	.5500	.5000	.500
35-39	R	2430	4.819	.9621	.9808	.9819	1.021	160	5.402	.8562	.9137	.9700	1.132	691	6.460	.5484	.7470	.8862	1.615	96	7.281	.5416	.7416	.9166	1.692
	M	1496	4.393	.9438	.9494	.9352	.991	297	4.734	.9427	.9441	.9131	.968	942	4.832	.7993	.8562	.8556	1.070	172	4.664	.8081	.8581	.8662	1.071
	D	52	1.920	1.0000	.7192	.8153	.815	10	1.815	1.0000	.6600	.8600	.860	71	0.980	1.0000	.5267	.7211	.721	11	1.821	1.0000	.6363	.7454	.745
40-44	R	2482	4.791	.9621	.9827	.9753	1.014	154	5.000	.8896	.9246	.9545	1.072	863	6.376	.5990	.7828	.9068	1.513	95	6.431	.5894	.7915	.8673	1.471
	M	1446	4.299	.9412	.9445	.9208	.978	270	4.654	.9333	.9511	.9111	.976	992	4.707	.8417	.8868	.8546	1.015	149	4.846	.8389	.8979	.8456	1.007
	D	45	2.116	1.0000	.7777	.8088	.809	20	2.682	1.0000	.7300	.8700	.870	63	1.494	1.0000	.6380	.7269	.727	24	1.982	1.0000	.6333	.7750	.775
45-49	R	2190	4.765	.9630	.9806	.9675	1.005	137	5.099	.9270	.9664	.9343	1.007	849	5.989	.6725	.8247	.9062	1.347	119	5.873	.5461	.7075	.8773	1.606
	M	1404	4.221	.9458	.9450	.9118	.964	226	4.389	.9159	.9415	.8973	.979	904	4.560	.8539	.9033	.8402	.983	112	4.551	.8839	.8964	.8482	.959
	D	39	2.023	1.0000	.8051	.7743	.774	19	1.622	.9473	.6526	.7368	.778	55	2.094	.9818	.6109	.7200	.733	15	2.527	1.0000	.6933	.7466	.747
50-54	R	1860	4.764	.9580	.9798	.9549	.997	114	4.928	.8859	.9421	.9508	1.073	796	5.535	.7211	.8469	.9030	1.252	85	5.805	.6470	.8754	.8894	1.374
	M	1272	4.218	.9488	.9482	.8949	.943	188	4.376	.8404	.8529	.8345	.992	832	4.441	.8744	.9096	.8473	.965	99	4.767	.8787	.8787	.8060	.917
	D	48	2.101	1.0000	.7500	.7708	.771	21	1.225	1.0000	.7523	.6380	.638	55	1.936	1.0000	.7090	.6800	.680	21	2.194	1.0000	.7904	.7142	.714
55-59	R	1472	4.759	.9544	.9763	.9263	.971	71	4.920	.8591	.9380	.8647	1.006	649	5.231	.7704	.8105	.8644	1.122	58	5.665	.5689	.7379	.8241	1.448
	M	1101	4.144	.9391	.9404	.8653	.921	131	4.239	.8854	.9236	.8687	.981	705	4.491	.8907	.9171	.8286	.930	67	3.635	.9104	.9223	.7970	.875
	D	48	2.189	1.0000	.8083	.7291	.729	10	1.790	1.0000	.8000	.7200	.720	44	2.336	1.0000	.7772	.6818	.682	7	1.885	1.0000	.6285	.7428	.742

turnaround we have discussed in another connection earlier in this paper. And while the number of twenty to twenty-four-year-old DECREASERS is quite small, it is noteworthy that while their ER exceed that of the RISERS and MIXERS in 1958, for the 1958-62 period as a whole, and in 1965-69 as well, it is substantially lower than that of the two other pattern groups. And while some recovery does occur in 1965-69, the DECREASERS do not regain their initial advantage in employment.

The most significant characteristics of these histories is the congruence between the earning pattern during 1958-62 and the change in ER from 1958 to 1965-69. In each of the eight age groups, the RISER Cumulative Earning Rate exceeds that of the MIXERS, which in turn exceeds that of the DECREASERS. Interestingly, the rank order of change in ER from 1958 to 1965-69 is completely consistent with this array. The change in employment is most favorable for RISERS less favorable for MIXERS, and least favorable for DECREASERS.

It is true, of course, that the CER is generally lower for each successively older age group, but so too is the change in employment. What is particularly striking is that this consistency marks both the positive and negative employment changes. Among older workers, for example, MIXER employment declines to a lesser degree than that of DECREASERS, as for example, in the forty and older age groups.

Institutional Trainees: ER Changes (Table 4)

This summary of one of the principle characteristics of the employment changes of the CWHS members reveals the existence of differential or structured rates of change which characterize various age groups in the labor force, and of different segments within each age group. That CWHS RISERS may increase their ER, while the employment of MIXERS and DECREASERS changes negatively, suggests that the aging process is not monolithic, but affects employability with a certain consistency of effect.

TABLE 4

TABLE 4: CWHS MEMBERS AND 1964 MDTA INSTITUTIONAL COMPETERS AND NONCOMPLETERS WHO WERE RISERS, MIXERS, OR DECREASERS IN 1958-62: THE CORRELATION BETWEEN THE 1958-62 CER AND THE CHANGE IN MAN YEARS OF EMPLOYMENT (ER) FROM 1958 TO 1965-69

AGE IN 1964	TYPE 1958-62	MALE WHITE						MALE NEGRO						FEMALE WHITE						FEMALE NEGRO						TIME SERIES GROUPS
		CWHS		COMPLETERS		NONCOMPLETERS		CWHS		COMPLETERS		NONCOMPLETERS		CWHS		COMPLETERS		NONCOMPLETERS		CWHS		COMPLETERS		NONCOMPLETERS		
		CER 1958-62	1965-69 ÷ 1958	CER 1958-62	1965-69 ÷ 1958	CER 1958-62	1965-69 ÷ 1958	CER 1958-62	1965-69 ÷ 1958	CER 1958-62	1965-69 ÷ 1958	CER 1958-62	1965-69 ÷ 1958	CER 1958-62	1965-69 ÷ 1958	CER 1958-62	1965-69 ÷ 1958	CER 1958-62	1965-69 ÷ 1958	CER 1958-62	1965-69 ÷ 1958	CER 1958-62	1965-69 ÷ 1958	CER 1958-62	1965-69 ÷ 1958	
[illegible]	R	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	r= .967
	M	11.625	1.704	14.700	1.900	15.020	1.970	13.110	1.905	16.065	2.486	10.206	2.471	13.911	1.917	16.065	1.910	10.753	2.112	26.616	2.519	20.162	3.005	20.176	1.122	
	D	1.603	.062	0.625	1.026	1.390	1.016	1.690	.057	2.153	1.000	1.616	1.060	0.596	.009	0.025	.011	0.525	.675	1.080	.211	0.750	.757	0.150	1.066	
25-29	R	7.238	1.116	8.277	1.128	8.715	1.222	7.760	1.300	10.171	1.122	11.600	1.365	8.076	1.303	10.938	2.119	13.330	1.905	13.105	2.902	17.210	2.705	25.762	3.000	r= .970
	M	5.590	1.025	5.500	1.019	5.573	1.052	5.066	1.067	5.529	1.030	5.797	.936	6.096	.891	5.099	1.067	6.640	.882	5.507	1.136	5.750	1.104	5.002	1.156	
	D	1.590	.033	1.723	.039	1.523	.008	0.757	.980	1.650	.053	1.155	.769	1.030	.696	0.606	.704	0.735	.533	2.306	.007	1.015	.710	0.606	.785	
30-34	R	5.986	1.067	6.200	1.108	5.915	1.255	5.990	1.113	7.829	1.267	7.658	1.100	6.000	1.578	9.551	2.533	29.617	3.601	10.391	2.105	13.961	2.669	9.716	1.701	r= .867
	M	4.723	1.062	4.673	1.008	4.600	.967	4.865	1.026	4.766	1.032	5.192	1.021	4.546	1.075	6.776	1.131	4.991	1.052	6.776	1.006	4.970	1.116	6.160	.960	
	D	3.092	.069	1.506	.080	1.631	.760	2.366	.771	1.079	.703	7.133	.758	0.062	.679	0.700	.758	0.632	.500	1.313	.500	1.313	.809	0.069	.557	
35-39	R	6.019	1.021	5.303	1.135	5.503	1.110	5.402	1.137	6.576	1.667	7.511	2.000	6.640	1.615	11.219	2.900	8.152	2.600	7.701	1.692	9.635	2.200	10.796	1.000	r= .896
	M	6.395	.991	6.199	1.061	6.675	.965	6.739	.960	6.261	1.010	6.108	.911	6.037	1.070	6.771	1.164	6.936	1.020	6.664	1.071	6.510	1.026	1.757	.961	
	D	1.920	.015	1.636	.036	1.730	.962	1.019	.860	1.567	.020	1.093	.916	0.900	.771	1.731	.756	1.096	.623	1.021	.705	1.672	.751	1.701	.640	
40-44	R	6.795	1.016	5.170	1.091	5.203	1.025	5.000	1.977	6.752	1.277	5.118	.757	6.176	1.519	9.761	2.667	9.302	2.577	6.431	1.471	8.790	3.510	11.671	2.610	r= .866
	M	4.290	.920	4.318	.980	4.290	.966	6.616	.976	4.717	.982	4.755	1.061	6.707	1.015	6.027	1.110	4.505	.997	4.044	1.007	5.230	1.173	3.357	.895	
	D	2.116	.009	1.706	.270	1.562	.040	7.607	.870	1.225	.705	0.306	.000	1.696	.727	0.755	.705	0.856	.660	1.902	.775	0.996	.717	0.541	.567	
45-49	R	6.765	1.005	5.002	.977	5.215	1.096	5.090	1.007	6.689	1.556	-	-	5.990	1.567	8.550	2.130	7.676	1.631	5.071	1.606	9.606	1.933			r= .877
	M	6.121	.964	6.073	.960	6.061	.880	6.309	.979	5.930	.926	5.221	1.000	6.360	.983	6.705	1.096	6.506	.970	6.551	.959	6.335	.990	3.615	1.000	
	D	2.021	.776	1.376	.677	1.600	.900	1.677	.770	1.071	.770	1.061	.767	2.096	.773	1.752	.077	-	-	2.527	.767	1.273	.967	-	-	
50-54	R	6.766	.997	5.700	1.137	5.100	1.053	6.920	1.071	5.717	1.500	-	-	5.515	1.252	7.261	1.090	8.055	1.500	5.005	1.376	6.006	1.656	-	-	r= .871
	M	6.210	.963	6.061	.912	6.030	.896	6.176	.992	5.916	.964	6.062	.761	6.661	.965	6.027	1.049	6.306	.961	6.167	.917	3.915	1.226	-	-	
	D	2.101	.771	1.757	.735	1.027	.609	1.272	.630	1.252	.626	1.050	.902	1.926	.680	1.633	.960	1.771	.037	2.106	.716	-	-	-	-	
55-59	R	6.758	.971	5.507	1.077	4.950	1.063	6.920	1.006	16.166	2.600	-	-	5.731	1.127	6.935	1.066	10.007	2.531	5.665	1.660	-	-	-	-	r= .920
	M	6.144	.921	6.027	.876	6.000	.896	6.739	.981	3.690	1.015	-	-	6.091	.930	6.151	.905	6.301	1.026	5.635	.875	3.006	.906	-	-	
	D	2.109	.729	2.109	.670	1.761	.725	1.300	.720	2.609	.600	-	-	2.130	.002	1.385	.037	1.605	.725	1.003	.763	-	-	-	-	

CORRELATION COEFFICIENTS[1] 1958-62 CER and CHANGE FROM 1958 TO 1965-69

ALL AGES	.995	.986	.991	.967	.981	.980	.979	.971	.911	.982	.993	.971
TIME & CROSS-SECT. & [illegible]	-	.986	.989	-	.982	.987	-	.967	.976	-	.977	.964

[1] Significant at 1% level, unless otherwise indicated.

The analytical role of pattern, the CWHS histories suggest, is to permit the classification of labor market histories into meaningful categories of change. Thus, although the CWHS members were all employed in 1964, the 39,792 men and women participants in the 1964 MDTA Institutional training program were largely unemployed in the period preceding their entry into the program. While a more precise statement concerning their employment status cannot be made, most analysts agree that the CWHS histories as a whole are upwardly biased, while those of the Institutional trainees are skewed negatively. In addition, some analysts have suggested that the men and women CWHS members are better educated and higher paid than the disadvantaged and unemployed trainees, and that the histories of the two groups are simply not comparable.

When disaggregated and classified by earning patterns in 1958-62, however, the process underlying the employment changes of both the trainees and the CWHS members is seen to be identical. The trainee histories are shown separately for those who did and did not complete their training. In each of eight age groups of these men or women of either race, the symmetry between the 1958-62 CER and the change in employment is apparent. The larger the rate of earning cumulation in the base period, the more favorable is the change in man years of employment.

The Continuity of Change (Table 4)

The ubiquity of this symmetry suggests an underlying relationship between the 1958-62 CER of the various pattern groups, and the change in employment from 1958 to 1965-69. And indeed, these two variables are closely and significantly correlated. Three aspects of that relationship are particularly noteworthy. The CER-ER change relationship is significantly correlated not only for the CWHS members, but for the Institutional Completers and Non-Completers as well. As the correlation coefficients at the foot of Table

4 indicate, this holds true not only for the CWHS, Completer, and Noncompleter samples considered independently, but also when the Completer or Noncompleter paired observations are coalesced with those of the CWHS members. The correlation coefficients remain significant and substantially unchanged.

The third, and probably the most important aspect of that relationship, is revealed by the correlation coefficients for each age group, when the CWHS, Completer and Noncompleter paired observations are coalesced without regard to sex or race. For each of the eight age groups, the coefficients reveal a persistent and pervasive relationship between the rate of earning cumulation in 1958-62 and the change in man years of employment from 1958 to 1965-69. From 75% to 93% of the change in employment of the age groups may be explained by the rate of earning cumulation in 1958-62.

The case of the twenty to twenty-four-year-olds in 1964 is particularly striking. Because their employment histories are traced from 1958 to 1969, the 1958-62 CER reflects their labor market experience six years earlier, when they were fourteen to eighteen years old, and ends five years later, when they were twenty-five to twenty-nine years old. As might be expected, the rates of earning cumulation reflect their rapid absorption into the labor market. And despite the very great disparity between the white and black CER of each sex, and between the CER of the CWHS and trainee samples, the relationship between the CER and the ER change is clearly evident. More than 93% of the change can be attributed to the rate of earning cumulation in the base period.

Earning Patterns and Earning Changes

As might be expected, the earning histories of the CWHS members and the trainees parallel their changes in man years of employment, and reveal the same congruence between the rate of earning cumulation in 1958-62 and the change in earnings from 1958 to 1965-69.

CWHS Earning Changes (Table 5)

The earning histories of the CWHS members reveal the same symmetry between the CER in 1958-62 and the change in earnings that characterized their employment. Within each sex-race group as a whole, and in each age group as well, RISERS, MIXERS, and DECREASERS cumulate earnings at successively lower rates, a rank order which is consistently accompanied by respectively lower changes in earnings from 1958 to 1965-69. And, as in the case of their employment changes, the change in earnings of the CWHS members is age-related. The older the group, the lower is the 1958-62 CER, and the lower is the change in earnings from 1958 to 1965-69.

Trainer Earning Changes (Table 6)

A comparison of the dynamics of the change in earnings reveals the presence of the same underlying forces in the earning histories of the 1964 Institutional Completers and Noncompleters. And as indicated at the foot of Table 6, the correlation between the rate of earning cumulation during 1958-62, and the change in earnings from 1958 to 1965-69, is as strong and as significant for the Institutional trainees as for the CWHS members. Whether one examines the earning changes of the CWHS members, the Institutional Completers or Non-Completers, regardless of sex or race, at least 90% of the change in earnings from 1958 to 1965-69 may be attributed to the rate of earning cumulation during 1958-62.

And as in the case of the change in ER, the paired observations for the coalesced CWHS and trainee groups as a whole reveal a virtually unchanged set of correlation coefficients. This is also true for each age group, when we test the relationship between the CER during 1958-62 and the change in earnings. The correlation coefficients in each instance reveal a firm and stabel relationship between these two variables.

This section of the paper has considered the changes in employment and earnings of some 89,000 individuals--more than 49,000 CWHS members and some 40,000 Institutional trainee Completers and Non-Completers--during the 1958-69 period. And although their respective employment and earning levels differed, we discovered a process of change which was common to them all.

TABLE 5

TABLE 5 - CWHS MEMBERS WHO WERE RISERS, MIXERS OR DECREASERS DURING 1958-62: THE 1958-62 CUMULATIVE EARNING RATE AND THE CHANGE IN EARNINGS FROM 1958 TO 1965-69, BY SEX, RACE AND AGE IN 1964

AGE IN 1964	PATTERN 1958-62	Number	CER 1958-62	1958	1958-62	1965-69	1965-69 ÷ 1958	Number	CER 1958-62	1958	1958-62	1965-69	1965-69 ÷ 1958	Number	CER 1958-62	1958	1958-62	1965-69	1965-69 ÷ 1958	Number	CER 1958-62	1958	1958-62	1965-69	1965-69 ÷ 1958
TOTAL		N= 29849		MALE WHITE				N= 3388			MALE NEGRO			N= 14894			FEMALE WHITE			N= 1926			FEMALE NEGRO		
20-24	R	2677	1.196	$ 140	$ 4520	$23115	165.107	326	8.840	$ 50	$ 3003	[illegible]	326.600	1523	[illegible]	$ 68	$ 3698	11404	167.703	148	55.352	$ 27	$1845	$10797	399.888
	M	1863	13.625	354	5180	22758	64,288	206	3.118	262	3709	16336	62.351	986	13 931	257	3842	10618	41.315	103	24.614	86	2211	10543	122.593
	D	24	1.603	567	1677	19686	34.719	7	1.638	675	1281	8916	13.209	23	0.596	525	838	4308	8.206	3	1.069	461	955	5697	12.358
25-29	R	1655	7.238	1884	15526	28873	15.325	179	7.768	1157	10122	23218	20.067	562	8.076	1141	10363	15222	13.340	77	13.105	371	5245	14304	38.555
	M	2401	5.559	1712	11230	25140	14.685	330	5.866	1096	7528	17865	16.300	981	4.896	1353	7978	11404	8.424	196	5.587	764	5038	11690	15.301
	D	49	1.590	1944	5036	16708	8.595	10	0.757	1018	1790	16659	16.364	98	1.010	1491	2998	9048	6.068	17	2.504	909	3187	5176	5.694
30-34	R	2122	5.381	3142	20052	30257	9.630	175	5.990	2074	14505	23805	11.474	504	6.888	1280	10100	16580	12.953	94	10.291	506	5721	12855	24.871
	M	1638	4.723	2450	14027	23996	9.794	312	6.845	1706	9973	18358	10.760	825	4.554	1503	8353	13081	8.703	148	4.774	1056	6097	10878	10.301
	D	65	1.892	1993	5767	16412	8.234	15	2.344	1628	5444	12440	7.641	71	0.862	1646	3066	7515	4.516	8	1.313	1032	2387	2956	2.864
35-39	R	2430	4.819	3707	21574	30783	8.304	160	5.402	2527	16181	24912	9.858	691	6.440	1471	10947	18612	12.652	96	7.281	927	7680	15840	17.087
	M	1496	4.393	2808	15146	23670	8.358	297	5.734	2031	11649	19334	9.519	942	4.832	1494	8716	14112	9.446	172	4.664	1207	6836	12078	10.006
	D	52	1.920	2158	6302	13090	6.066	10	1.815	1897	5360	13677	7.210	71	0.980	1557	3085	8476	5.444	11	1.821	1133	3198	8382	7.398
40-44	R	2482	4.791	3777	21876	30461	8.065	154	5.000	2768	16609	24308	8.781	863	6.376	1516	11186	18804	12.403	95	6.431	1028	7646	12201	11.868
	M	1446	4.299	2823	14962	21977	7.785	270	5.654	1654	8665	15153	9.161	992	4.707	1666	9513	14510	8.709	149	4.846	1228	7181	10601	8.640
	D	45	2.116	2533	7888	16268	6.427	20	2.682	2051	7552	13497	6.581	63	1.494	1457	3635	7968	5.469	24	1.982	1239	3696	6766	5.445
45-49	R	2190	4.765	3840	22060	30236	7.873	137	5.099	2862	17459	23682	8.274	849	5.999	1753	12275	18956	10.813	119	5.873	1081	7430	12193	11.279
	M	1404	4.221	2825	14754	21178	7.497	226	5.389	2097	11305	17190	8.197	904	4.560	1817	10105	14060	7.738	112	4.551	1309	7271	9999	7.638
	D	39	2.023	2466	7459	10607	4.301	19	1.622	1882	4936	10768	5.721	55	2.094	1528	4729	10011	6.552	15	2.527	780	2752	5183	6.645
50-54	R	1860	4.764	3785	21823	29169	7.706	114	5.928	2679	15886	22352	8.343	796	5.535	1987	12987	18746	9.434	85	5.805	1147	7808	12624	11.006
	M	1272	4.218	2829	14763	19922	7.042	188	5.376	2132	11462	16774	7.867	832	4.441	1885	10261	13691	7.263	99	4.167	1631	7395	9367	6.545
	D	48	2.101	2203	6833	10801	4.903	21	1.225	2073	4612	5983	2.886	55	1.936	2101	6169	7889	3.755	21	2.194	1130	3613	4145	3.668
55-59	R	1472	4.759	3761	21543	27005	7.219	71	5.920	2528	14967	18353	7.259	649	5.231	2233	13915	18560	8.311	58	5.665	1046	6977	11335	10.836
	M	1101	4.144	2711	13950	17741	6.544	131	5.239	2303	12068	15184	6.593	705	4.491	1901	10440	12769	6.716	67	3.635	1251	5799	7312	5.844
	D	48	2.189	2148	7776	9009	4.194	10	1.780	2337	6498	7472	3.197	44	2.336	1792	5980	7334	4.093	7	1.885	1364	3936	4767	3.495

TABLE 6

6: CWHS MEMBERS AND 1964 MDTA INSTITUTIONAL COMPLETERS AND NONCOMPLETERS WHO WERE RISERS, MIXERS OR DECREASERS IN 1958-62

THE CORRELATION BETWEEN THE 1958-62 CER AND THE CHANGE IN EARNINGS FROM 1958 TO 1965-69

Age in 1958	Pattern 1958-62	Tot.		Completers		Noncompleters		Tot.		Completers		Noncompleters		Tot.		Completers		Noncompleters		Tot.		Completers		Noncompleters		Four Sex Race Groups
		CER 1958-62	1965-69 ÷ 1958	CER 1958-62	1965-69 ÷ 1958	CER 1958-62	1965-69 ÷ 1958	CER 1958-62	1965-69 ÷ 1958	CER 1958-62	1965-69 ÷ 1958	CER 1958-62	1965-69 ÷ 1958	CER 1958-62	1965-69 ÷ 1958	CER 1958-62	1965-69 ÷ 1958	CER 1958-62	1965-69 ÷ 1958	CER 1958-62	1965-69 ÷ 1958	CER 1958-62	1965-69 ÷ 1958	CER 1958-62	1965-69 ÷ 1958	
		MALE WHITE						MALE NEGRO						FEMALE WHITE						FEMALE NEGRO						
20-24	R	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	r= .968
	M	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	
	D	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	
25-29	R	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	r= .899
	M	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	
	D	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	
30-34	R	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	r= .962
	M	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	
	D	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	
35-39	R	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	r= .855
	M	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	
	D	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	
40-44	R	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	r= .848
	M	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	
	D	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	
45-49	R	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	-	-	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	-	-	r= .795
	M	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	
	D	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	-	-	[illegible]	[illegible]	[illegible]	[illegible]	-	-	
50-54	R	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	-	-	r= .826
	M	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	-	-	
	D	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	-	-	-	-	
55-59	R	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	-	-	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	-	-	-	-	r= .901
	M	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	-	-	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	-	-	
	D	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	-	-	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	-	-	-	-	

CORRELATION COEFFICIENTS[1] 1958-62 CER and CHANGE FROM 1958 TO 1965-69

[illegible]	.971	.972	.982	.939	.970	.972	.983	.992	.998	.989	.986	.935
[illegible]	-	.962	.979	-	.966	.967	-	.971	.980	-	.992	.991

[1] Significant at 1% level, unless otherwise indicated.

Analysis of the labor market experience reflected in 113,500 earning histories of CWHS RISERS, MIXERS and DECREASERS for two other time periods, 1962-66 to 1969, and 1963-67 to 1969, serves merely to replicate our findings for the longer 1958-62 to 1965-69 period. The CER in the base periods is invariably correlated significantly with the changes in ER and earnings from the initial base year to the terminal year. The changes in employment and earnings of more than 105,000 trainees in the 1968 MDTA Institutional program, the Mainstream program, and the JOBS Contract and Non-Contract programs reveal precisely the same relationships, whether considered independently, or in conjunction with the paired observations of the CWHS groups.

In all, we have analyzed about 220,000 employment and earning histories. Change does characterize those histories, and the process is marked by a singular uniformity and consistency which reveal a continuing set of patterns of change which characterize the labor market experience during the aging process.

THE HOLISTIC NATURE OF THE CHANGE IN EARNINGS

In an earlier reference to the earning pattern concept, I have described it as reflecting the interactional effects of the totality of forces responsible for the change in earning capacity. It is this holistic characteristic of "pattern," and of the longitudinal system of analysis of which it is a component, which permits isolation and demonstration of the thread of continuity which links the past and future labor market experiences of men and women as they age.

Education As A Variable: RR and MM Trainees and CWHS Members

Nowhere is this holistic quality better illustrated than in the earning histories of the Institutional trainees when classified by years of schooling. As we shall see, the education variable is not monolithic in its effects, and by itself cannot explain why, for example, some high school dropouts have more favorable changes in earnings than high school graduates. In short, these earning histories demonstrate that education is not an independent variable, and that it is not causitively related to earnings as implied by the careless writings of some economists. Indeed, these histories suggest that the relative significance of the education-earnings relationship changes as individuals age, and that the influence of education on earnings diminishes with increasing age.

Schooling and the RR and MM Trainees (Table 7)

The implicit assumption in Tables of Lifetime Earnings that the education-earnings relationship remains unchanged throughout a lifetime is not supported by the earning histories of 9,221 Institutional trainees.

Table 7 highlights the changes of two groups of these trainees; those who were RISERS in 1958-62 and in 1965-69 (RR), and those who were MIXERS in both instances (MM). The earning patterns of each group, therefore, remained constant from 1958 to 1969. Also held constant are the number of years of schooling. The RR group includes only high school dropouts, while the MM trainees had all graduated from high school, and some had gone on to college. The more favored RR pattern groups were thus educationally disadvantaged. The less favored MM trainees, however, were more favored educationally.

A comparison of the 1958-62 CER of each group discloses that for each sex and race, the RR high school dropouts--despite their relative disadvantage in years of schooling--were cumulating earnings at a faster rate than those MM trainees who were high school graduates. And the correlation coefficients indicate that the changes in earnings form 1958- to 1965-69, were commensurate with the rate of earning cumulation in the 1958-62 base period.

Of even greater interest are the correlation coefficients for each age group as a whole, when race and sex characteristics are disregarded. The differences between the CER of the blacks and the whites of each sex are clearly reflected in their respective CER. And change in earnings is always commensurate with the 1958-62 CER, as revealed by the correlation coefficients. The date in Table 7, therefore, reflect not only sex, race and age differences, but differences between the years of schooling of

TABLE 7

TABLE 7: RR AND MM 1964 MDTA INSTITUTIONAL TRAINEES WITH 9-11 OR 12 YEARS OF SCHOOLING RESPECTIVELY -- THE CORRELATION BETWEEN THE 1958-62 CER AND THE CHANGE IN EARNINGS FROM 1958 TO 1965-69, BY EARNING PATTERN, 1958-62/1965-69

AGE in 1964	P'TRN 1958-62 & 1965-69	Schooling	CER 1958-62	1965-69 ÷ 1958	CER 1958-62	1965-69 ÷ 1958	CER 1958-62	1965-69 ÷ 1958	CER 1958-62	1965-69 ÷ 1958	Four Sex-Race Groups
			N=4206		N=1268		N=2451		N=1296		r=*
			MALE WHITE		MALE NEGRO		FEMALE WHITE		FEMALE NEGRO		
20-24	RR	9-11	44.828	342.636	53.936	565.342	91.954	648.863	81.781	1157...	.890
	MM	12+	13.791	63.862	16.087	87.623	20.454	76.284	26.664	30.754	
25-29	RR	9-11	7.469	19.459	8.126	27.552	11.834	46.707	37.220	221.837	.998
	MM	12+	5.550	14.410	5.631	16.485	5.048	11.303	5.620	17.645	
30-34	RR	9-11	5.874	12.092	6.853	18.091	10.121	43.944	9.203	26.900	.940
	MM	12+	4.685	9.345	4.963	10.523	4.768	10.891	4.986	15.080	
35-39	RR	9-11	4.922	8.801	5.031	11.437	7.020	21.279	17.028	57.700	.996
	MM	12+	4.260	7.820	4.118	8.014	4.768	9.929	4.306	10.499	
40-44	RR	9-11	5.034	8.407	4.974	9.075	15.567	77.042	55.716	285.017	.999
	MM	12+	3.924	6.578	4.028	7.573	4.621	9.613	4.524	9.614	
45-49	RR	9-11	4.781	8.168	5.368	13.895	6.876	22.719	-	-	.990
	MM	12+	4.134	6.246	4.387	6.510	4.691	8.630	4.740	9.899	
50-54	RR	9-11	4.857	8.498	4.889	19.992	9.439	33.292	4.883	8.339	.902
	MM	12+	3.996	5.876	5.283	11.348	4.966	7.412	4.506	6.051	
55-59	RR	9-11	5.025	7.501	13.943	34.442	6.190	10.548	-	-	.924
	MM	12+	3.835	5.267	4.061	7.502	4.082	6.160	2.595	12.260	
			r=.997		r=.985		r=.989		r=.899		

*Sig. at 1% unless otherwise indicated.

the RR and MM trainees as well. It is on the basis of this and other evidence shown below, that one may reasonable infer the holistic character of the change in earnings.

RR and MM CWHS Members and Trainees (Table 8)

The most striking evidence of the holistic nature of the change in earnings is found when we compare the histories of the CWHS member--for whom data on schooling are not available--with those of the Institutional trainees, when classified as high school dropouts or graduates. For the RR and MM graduates and dropouts alike, the correlation coefficients reveal a clearly delineated relationship between the 1958-62 CER and the change in earnings from 1958 to 1965-69. This is equally true of the CWHS members. And although we are somethimes assured that the CWHS members are better schooled, higher paid and more advantaged than the disadvantaged trainees, the process of change is precisely the same for all three cohorts. Whether one coalesces the CWHS observations with those of the dropouts or the graduates, of each sex, race, and age, the hypothesis holds true. Cumulative Earning Rate must reflect the differential effects of schooling levels on the change in earnings.

CWHS Members and Trainees (Tables 9 and 10)

Precisely the same holistic characteristics mark the change in earnings of the high school dropouts and graduates among the Institutional trainees, and the CWHS members when the 1965-69 earning pattern is held constant. Whether the RR and MR earning changes are compared (Table 9), or the RM and MM changes are compared, the findings are the same.

The CER in 1958-62 presages the change in earnings, and is commensurate with the earning changes from 1958 to 1965-69. This is equally true for the high school graduates, the dropouts, and the CWHS members, and when their histories are coalesced into a single synthetic cohort.

IMPLICATIONS FOR PUBLIC POLICY

Throughout this paper, I have emphasized the empirical evidence that

TABLE 8

TABLE 8: RR AND MM CWHS MEMBERS AND 1964 MDTA INSTITUTIONAL TRAINEES WITH 9-11 OR 12 YEARS OF SCHOOLING THE CORRELATION BETWEEN THE 1958-62 CER AND THE CHANGE IN EARNINGS FROM 1958 TO 1965-69, BY EARNING PATTERN, 1958-62/1965-69

Age in 1958	Pattern 1958-62 & 1965-69	CWHS		Trainees 9-11		Trainees 12+		CWHS		Trainees 9-11		Trainees 12+		CWHS		Trainees 9-11		Trainees 12+		CWHS		Trainees 9-11		Trainees 12+		[illegible]
		CER 1958-62	1965-69 : 1958	CER 1958-62	1965-69 : 1958	CER 1958-62	1965-69 : 1958	CER 1958-62	1965-69 : 1958	CER 1958-62	1965-69 : 1958	CER 1958-62	1965-69 : 1958	CER 1958-62	1965-69 : 1958	CER 1958-62	1965-69 : 1958	CER 1958-62	1965-69 : 1958	CER 1958-62	1965-69 : 1958	CER 1958-62	1965-69 : 1958	CER 1958-62	1965-69 : 1958	
		MALE WHITE						MALE NEGRO						FEMALE WHITE						FEMALE NEGRO						
20-24	RR	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	MM	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	
25-29	RR	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	MM	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	
30-34	RR	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	MM	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	
35-39	RR	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	MM	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	
40-44	RR	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	MM	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	
45-49	RR	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	-	-	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	-	-	[illegible]	[illegible]	[illegible]
	MM	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	
50-54	RR	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	-	-	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	MM	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	
55-59	RR	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	-		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	-	-	-		[illegible]
	MM	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	
		CORRELATION COEFFICIENTS 1/ 1958-62 CER and CHANGE FROM 1958 TO 1965-69																								
ALL AGES		[illegible]		[illegible]		[illegible]		[illegible]		[illegible]		[illegible]		[illegible]		[illegible]		[illegible]		[illegible]		[illegible]		[illegible]		
CWHS & 9-11 CWHS & 12+		-		[illegible]		[illegible]				[illegible]		[illegible]				[illegible]		[illegible]		-		[illegible]		[illegible]		

1/ Significant at 1% level, unless otherwise indicated.

TABLE 10

TABLE 10: RM AND MM CWHS MEMBERS AND 1964 MDTA INSTITUTIONAL TRAINEES WITH 9-11 OR 12 YEARS OF SCHOOLING
THE CORRELATION BETWEEN THE 1958-62 CER AND THE CHANGE IN EARNINGS FROM 1958 TO 1965-69,
BY EARNING PATTERN, 1958-62/1965-69

AGE IN 1964	PATTERN 1958-62 & 1965-69	CWHS		TRAINEES 9-11		TRAINEES 12+		CWHS		TRAINEES 9-11		TRAINEES 12+		CWHS		TRAINEES 9-11		TRAINEES 12+		CWHS		TRAINEES 9-11		TRAINEES 12+		Four Sex-Race Groups r
		CER 1958-62	1965-69 ÷ 1958	CER 1958-62	1965-69 ÷ 1958	CER 1958-62	1965-69 ÷ 1958	CER 1958-62	1965-69 ÷ 1958	CER 1958-62	1965-69 ÷ 1958	CER 1958-62	1965-69 ÷ 1958	CER 1958-62	1965-69 ÷ 1958	CER 1958-62	1965-69 ÷ 1958	CER 1958-62	1965-69 ÷ 1958	CER 1958-62	1965-69 ÷ 1958	CER 1958-62	1965-69 ÷ 1958	CER 1958-62	1965-69 ÷ 1958	
		MALE WHITE						MALE NEGRO						FEMALE WHITE						FEMALE NEGRO						
20-24	RM	37.505	195.000	59.830	362.723	62.484	273.036	60.736	427.600	76.706	555.269	65.069	487.600	66.900	266.611	115.573	306.000	115.000	665.066	46.393	239.116	231.299	1915.871	142.000	1696.815	.982
	MM	16.990	65.000	16.001	80.199	13.791	63.063	13.104	37.761	12.977	77.849	16.087	87.621	13.256	42.710	12.065	63.615	20.434	76.284	29.193	110.363	20.475	557.063	26.664	136.193	
25-29	RM	7.321	15.530	9.075	16.357	8.211	18.956	8.712	23.075	11.870	30.790	10.105	27.257	8.177	16.789	20.737	61.606	10.171	19.961	15.175	41.366	25.000	98.141	15.026	54.920	.960
	MM	5.462	13.221	5.756	15.935	5.302	16.410	5.255	12.509	4.977	15.255	5.611	16.605	5.062	9.371	5.213	12.530	5.069	11.303	2.332	14.637	6.076	19.016	5.620	17.665	
30-34	RM	5.068	9.101	7.730	11.303	6.174	10.906	6.377	11.170	8.966	20.907	7.466	14.906	7.671	16.365	19.211	77.765	10.658	27.203	10.204	27.162	10.272	97.994	20.905	71.356	.951
	MM	4.023	8.092	4.282	9.690	4.943	9.163	4.690	2.978	4.911	10.384	4.961	10.521	4.050	8.948	5.311	11.076	4.065	10.851	5.743	10.091	4.937	11.166	6.906	17.600	
35-39	RM	5.091	7.032	5.726	9.500	5.680	7.560	5.679	9.157	7.001	16.989	10.882	27.027	7.657	15.420	13.100	61.366	9.603	27.394	8.862	21.005	26.530	56.365	10.420	65.003	.920
	MM	4.301	7.962	4.212	7.607	5.200	7.070	4.651	9.388	6.209	19.367	6.110	8.914	4.079	9.525	5.010	11.097	4.760	9.929	4.722	10.901	4.164	10.565	6.106	10.699	
40-44	RM	5.025	7.640	5.670	7.066	6.897	5.360	5.103	9.257	6.900	12.503	5.656	6.093	7.072	13.350	9.773	77.152	9.017	23.977	7.226	13.951	10.909	30.017	16.531	67.976	.959
	MM	4.226	7.255	4.775	7.192	3.926	6.570	5.603	8.091	3.791	8.050	4.020	7.573	4.711	8.605	4.741	9.602	4.621	9.611	6.572	8.197	4.766	12.551	6.526	9.611	
45-49	RM	6.991	7.351	5.220	7.609	5.077	5.262	5.250	7.264	5.060	6.160	10.026	42.587	6.315	10.931	8.766	16.077	9.696	21.698	5.974	10.065	8.517	9.616	19.164	80.217	.961
	MM	4.175	7.001	4.919	6.164	5.176	6.246	5.209	9.026	3.042	6.757	4.387	6.519	4.666	7.006	4.959	9.616	5.691	8.630	4.670	7.722	3.956	7.377	6.765	9.906	
50-54	RM	4.902	6.061	5.109	8.795	5.058	7.317	5.169	8.003	6.011	10.802	-	-	5.760	8.095	7.168	11.307	6.068	12.007	5.262	10.718	5.161	2.009	8.296	21.125	.786
	MM	4.157	6.005	4.279	6.991	3.996	5.077	4.226	7.349	2.051	7.007	5.203	11.360	4.651	7.477	5.275	7.010	4.996	7.612	4.269	7.172	3.117	6.761	6.506	6.051	
55-59	RM	6.069	6.666	5.265	5.966	5.716	5.350	5.469	8.700	-	-	-	-	5.385	8.117	11.310	49.659	7.206	15.692	6.362	15.316	-		-	-	.851
	MM	5.979	6.505	3.975	5.014	3.035	5.260	4.705	6.035	3.308	11.660	4.061	7.501	4.461	6.840	4.060	5.673	4.082	6.100	3.451	7.016	8.218	20.370	2.995	12.264	
		CORRELATION COEFFICIENTS 1/ 1958-62 CER and CHANGE FROM 1958 TO 1965-69																								
ALL AGES		.997		.996		.996		.999		.995		.996		.999		.998		.998		.999		.997		.990		
RMS & 9-11 MMS & 12+		-		.995		.998		-		.991		.991				.993		.986		-		.995		.994		

1/ Significant at 1% level, unless otherwise indicated.

TABLE 9

TABLE 9: RR AND MR CWHS MEMBERS AND 1964 MDTA INSTITUTIONAL TRAINEES WITH 9-11 OR 12 YEARS OF SCHOOLING THE CORRELATION BETWEEN THE 1958-62 CER AND THE CHANGE IN EARNINGS FROM 1958 TO 1965-69, BY EARNING PATTERN, 1958-62/1965-69

MALE WHITE

AGE IN 1964	E.P. 1958-62 & 1965-69	CWHS CER 1958-62	CWHS 1965-69 ÷ 1958	TRAINEES 9-11 CER 1958-62	TRAINEES 9-11 1965-69 ÷ 1958	TRAINEES 12+ CER 1958-62	TRAINEES 12+ 1965-69 ÷ 1958
20-24	RR	27.200	150.290	36.870	307.636	61.575	307.181
	MR	17.671	66.697	11.700	69.836	16.019	90.523
25-29	RR	7.058	15.312	7.669	19.469	8.172	22.471
	MR	5.858	10.566	5.639	10.056	5.515	10.779
30-34	RR	5.299	9.066	5.876	12.091	5.576	10.681
	MR	4.837	11.161	4.677	9.846	4.696	12.361
35-39	RR	6.756	8.676	6.927	8.802	5.266	9.527
	MR	6.627	9.626	6.000	10.156	4.120	10.151
40-44	RR	6.730	8.371	5.036	8.460	5.117	9.538
	MR	6.351	9.161	6.566	11.290	6.162	8.904
45-49	RR	6.673	8.206	6.781	8.160	6.876	8.568
	MR	6.267	8.756	5.575	9.052	6.065	9.196
50-54	RR	6.306	8.267	6.857	8.699	5.017	8.365
	MR	6.112	8.776	6.179	8.198	3.969	8.067
55-59	RR	6.699	8.216	5.075	7.501	5.509	9.779
	MR	6.167	8.778	6.406	7.038	3.967	7.861

MALE NEGRO

AGE IN 1964	E.P. 1958-62 & 1965-69	CWHS CER 1958-62	CWHS 1965-69 ÷ 1958	TRAINEES 9-11 CER 1958-62	TRAINEES 9-11 1965-69 ÷ 1958	TRAINEES 12+ CER 1958-62	TRAINEES 12+ 1965-69 ÷ 1958
20-24	RR	57.870	366.677	71.956	585.937	75.668	295.986
	MR	13.260	82.862	15.631	102.065	27.313	190.194
25-29	RR	7.197	10.921	8.176	27.557	10.692	38.691
	MR	6.093	10.836	5.669	20.101	6.164	27.775
30-34	RR	5.760	12.010	6.851	18.091	7.569	19.666
	MR	5.126	12.977	4.666	15.676	6.775	16.279
35-39	RR	5.369	10.130	5.031	11.637	5.766	10.108
	MR	6.028	10.601	4.556	15.057	6.575	17.656
40-44	RR	6.013	8.700	6.976	9.075	6.699	10.077
	MR	6.300	10.295	4.644	13.621	6.665	12.160
45-49	RR	6.975	9.182	5.368	13.895	-	-
	MR	6.492	10.163	6.076	7.268	3.991	7.956
50-54	RR	6.400	8.332	6.009	19.997	-	
	MR	6.560	9.639	6.679	10.217	3.166	7.637
55-59	RR	6.649	7.955	11.963	16.663	-	-
	MR	6.010	2.498	-	-	-	-

FEMALE WHITE

AGE IN 1964	E.P. 1958-62 & 1965-69	CWHS CER 1958-62	CWHS 1965-69 ÷ 1958	TRAINEES 9-11 CER 1958-62	TRAINEES 9-11 1965-69 ÷ 1958	TRAINEES 12+ CER 1958-62	TRAINEES 12+ 1965-69 ÷ 1958
20-24	RR	56.864	705.404	91.956	668.861	32.113	1277.785
	MR	16.669	81.460	16.868	107.107	16.750	100.051
25-29	RR	7.652	16.201	11.032	46.700	12.160	65.262
	MR	6.591	12.117	4.251	17.687	6.909	17.177
30-34	RR	6.290	13.086	10.121	63.966	9.111	36.091
	MR	4.601	12.126	6.037	10.907	6.515	13.906
35-39	RR	5.775	11.979	7.020	21.729	11.620	67.080
	MR	6.779	11.519	5.295	15.537	6.609	16.090
40-44	RR	5.822	17.260	15.567	77.067	9.687	39.656
	MR	6.568	11.165	6.076	16.117	6.591	16.663
45-49	RR	5.652	11.321	6.076	72.719	6.744	20.506
	MR	6.676	9.860	6.205	9.865	6.632	16.236
50-54	RR	5.328	10.789	9.679	11.292	7.096	21.535
	MR	6.670	9.068	6.916	11.523	6.034	15.071
55-59	RR	5.019	9.756	6.190	10.568	7.859	21.767
	MR	4.561	9.612	3.750	9.300	5.125	19.059

FEMALE NEGRO

AGE IN 1964	E.P. 1958-62 & 1965-69	CWHS CER 1958-62	CWHS 1965-69 ÷ 1958	TRAINEES 9-11 CER 1958-62	TRAINEES 9-11 1965-69 ÷ 1958	TRAINEES 12+ CER 1958-62	TRAINEES 12+ 1965-69 ÷ 1958	Four Sex-Race Groups r*
20-24	RR	247.782	7307.	81.701	1157.000	105.178	1373.250	.971
	MR	70.705	539.	14.902	237.043	17.045	118.905	
25-29	RR	9.792	17.677	37.720	721.030	16.668	75.177	.981
	MR	5.961	20.117	7.180	39.170	3.806	30.710	
30-34	RR	11.561	31.157	9.293	76.900	11.792	61.970	.896
	MR	3.279	20.101	6.255	31.516	4.006	19.561	
35-39	RR	6.493	15.157	17.020	57.769	6.267	18.716	.968
	MR	4.555	11.300	5.216	20.969	4.501	10.059	
40-44	RR	5.677	11.561	55.716	205.097	7.000	22.074	.998
	MR	5.319	12.464	4.722	16.300	4.095	17.539	
45-49	RR	5.676	17.071	-	-	93.665	567.715	.999
	MR	6.376	10.651	4.650	11.644	3.406	9.351	
50-54	RR	5.735	12.776	6.051	8.139	7.000	15.970	.818
	MR	4.205	7.063	4.058	9.905	7.431	11.596	
55-59	RR	6.801	9.900	-	-	-	-	.978
	MR	5.175	9.690	-	-	-	-	

CORRELATION COEFFICIENTS[1] 1958-62 CER and CHANGE FROM 1958 TO 1965-69

	MALE WHITE CWHS	MALE WHITE TRAINEES 9-11	MALE WHITE TRAINEES 12+	MALE NEGRO CWHS	MALE NEGRO TRAINEES 9-11	MALE NEGRO TRAINEES 12+	FEMALE WHITE CWHS	FEMALE WHITE TRAINEES 9-11	FEMALE WHITE TRAINEES 12+	FEMALE NEGRO CWHS	FEMALE NEGRO TRAINEES 9-11	FEMALE NEGRO TRAINEES 12+
ALL AGES	.995	.998	.997	.990	.987	.991	.998	.998	.998	.996	.911	.850
CWHS & 9-11 CWHS & 12+	-	.991	.991	-	.971	.987	-	.992	.988	-	.985	.970

[1] Significant at 1% level, unless otherwise indicated.

changes in earning capacity are governed by principles which can be isolated and quantified within a longitudinal analytical system. The implications of my findings are many and varied, but space limitations permit comment only on one of the most significant.

The Change In Pattern (Tables 11 and 12)

The evidence concerning the determinative nature of change in the main has been discussed in terms of the change from 1958 to 1965-69 and its relationship to earning patterns in 1958-62. For public policy, this relationship can be expressed in another, and more pragmatic manner. In Tables 11 and 12, we seek to answer two questions. What was the likelihood that individuals with a given earning pattern in 1958-62 experienced an improvement or a deterioration in earning pattern in 1965-69? And was the process of change different for the CWHS members and the 1964 Institutional trainees? Answers to these questions are based on the changes in earning patterns of 114,775 men and women CWHS members and Institutional trainees.

1958-62 RISERS and MIXERS

A comparison of the 1958-62 RISER and MIXER pattern changes reveals a clear relationship between the 1958-62 pattern and the change in pattern. For those under twenty in 1964, the percentage of MIXERS who become RISERS in 1965-69 exceeds the percentage of 1958-62 RISERS who remain RISERS in 1965-69. This is readily explicable if one posits that MIXERS in this age group tend to leave school earlier than the RISERS. In each successively older age group, however, the percentage of 1958-62 MIXERS who become RISERS in 1965-69 declines. The percentage of RISERS who become MIXERS, however, also tends to decline in each successively older age group. In short, the older the age group, the greater is the likelihood that a favorable pattern in 1958-62 will be replicated in 1965-69. Similarly, an unfavorable pattern in 1958-62 increase the likelihood of a less favorable pattern in 1965-69.

In each instance, however, in 1965-69 sizeable percentages of RISERS do become MIXERS, and MIXERS do become RISERS.

TABLE 11: MALES — THE CHANGE IN EARNING PATTERNS FROM 1958-62 to 1965-69 — CORRELATION BETWEEN THE CHANGES OF 1964 CWHS[1] MEMBERS AND MDTA INSTITUTIONAL TRAINEES, BY EARNING PATTERN IN 1958-62

Pattern	1964 CWHS						1964 INSTITUTIONAL TRAINEES					
1958-62	Total		% With Pattern in 1965-69				Total		% With Pattern in 1965-69			
	Number	%	R	D	M	C	Number	%	R	D	M	C
					Age in 1964:		Under 20					
R	836	100.0	31.0	1.1	67.5	0.5	1,123	100.0	27.5	2.7	69.2	0.6
M	128	100.0	40.6	2.3	55.5	1.6	154	100.0	30.5	1.9	66.9	0.7
C	2,708	100.0	29.0	1.9	68.4	0.7	3,091	100.0	24.8	2.0	70.8	2.4
D	3	-	-	-	-	-	5	-	-	-	-	-
	CORRELATION, CWHS and TRAINEE PERCENTS:								r = .985	Sig 1%		
					Age in 1964:		20-24					
R	3,003	100.0	45.7	2.3	51.5	0.5	5,215	100.0	33.1	2.8	63.3	0.8
M	2,069	100.0	43.9	2.6	52.7	0.8	3,803	100.0	30.0	2.9	65.6	1.4
C	521	100.0	34.9	4.2	59.3	2.1	1,563	100.0	25.5	3.1	68.3	3.1
D	31	100.0	38.7	9.7	48.4	3.2	33	100.0	21.2	3.0	75.8	0
	CORRELATION, CWHS and TRAINEE PERCENTS:								r = .919	Sig 1%		
					Age in 1964:		25-29					
R	1,834	100.0	67.3	1.4	30.8	0.4	1,058	100.0	40.6	3.3	55.4	1.7
M	2,731	100.0	47.5	2.8	48.4	1.3	4,098	100.0	32.0	3.1	63.5	1.3
C	99	100.0	38.4	6.1	41.4	14.1	124	100.0	24.2	4.0	58.9	12.9
D	59	100.0	35.6	5.1	54.2	5.1	120	100.0	29.2	7.5	59.2	4.1
	CORRELATION, CWHS and TRAINEE PERCENTS:								r = .853	Sig 1%		
					Age in 1964:		30-34					
R	2,297	100.0	74.9	0.9	23.8	0.4	586	100.0	41.5	3.6	52.5	2.4
M	1,950	100.0	42.7	3.4	52.9	1.0	2,587	100.0	29.2	4.8	63.2	2.7
C	90	100.0	28.9	7.8	45.5	17.8	129	100.0	18.6	3.9	59.7	17.8
D	60	100.0	30.0	15.0	53.3	1.7	139	100.0	33.1	8.6	49.7	8.6
	CORRELATION, CWHS and TRAINEE PERCENTS:								r = .827	Sig 1%		
					Age in 1964:		35-39					
R	2,590	100.0	75.5	1.1	23.3	0.2	508	100.0	46.1	4.3	46.2	3.3
M	1,793	100.0	38.0	3.1	57.0	1.9	1,985	100.0	28.4	4.5	63.3	3.8
C	88	100.0	29.5	17.0	44.3	9.1	169	100.0	23.7	5.5	48.5	22.5
D	62	100.0	17.7	11.3	66.2	4.8	119	100.0	22.7	6.7	64.7	5.9
	CORRELATION, CWHS and TRAINEE PERCENTS:								r = .884	Sig 1%		
					Age in 1964:		40-44					
R	2,636	100.0	73.4	1.4	24.5	0.6	461	100.0	39.5	6.1	48.2	6.3
M	1,716	100.0	34.6	4.0	59.4	2.0	1,717	100.0	26.7	6.5	61.8	5.0
C	105	100.0	32.4	15.2	40.0	12.4	177	100.0	20.9	9.6	48.5	20.9
D	65	100.0	27.7	13.8	52.3	6.2	121	100.0	24.8	5.0	57.0	13.2
	CORRELATION, CWHS and TRAINEE PERCENTS:								r = .833	Sig 1%		
					Age in 1964:		45-49					
R	2,327	100.0	73.0	2.2	23.9	0.9	323	100.0	42.7	7.4	44.0	5.9
M	1,630	100.0	33.1	4.7	59.6	2.6	1,127	100.0	25.5	7.4	62.0	5.1
C	97	100.0	26.8	13.4	44.3	15.5	115	100.0	27.0	7.0	41.7	24.3
D	58	100.0	6.9	8.6	74.2	10.3	79	100.0	21.5	8.9	55.7	13.9
	CORRELATION, CWHS and TRAINEE PERCENTS:								r = .888	Sig 1%		
					Age in 1964:		50-54					
R	1,974	100.0	67.3	2.2	29.3	1.2	211	100.0	33.2	7.6	55.4	3.8
M	1,460	100.0	29.1	6.2	62.1	2.5	738	100.0	23.3	8.0	60.4	8.3
C	97	100.0	27.8	12.4	44.3	15.5	100	100.0	19.0	10.0	43.0	28.0
D	69	100.0	18.8	14.5	59.5	7.2	78	100.0	24.4	11.5	48.7	15.4
	CORRELATION, CWHS and TRAINEE PERCENTS:								r = .821	Sig 1%		
					Age in 1964:		55-59					
R	1,543	100.0	56.4	5.5	36.4	1.7	112	100.0	31.2	7.1	54.5	7.1
M	1,232	100.0	22.7	10.6	64.0	2.7	367	100.0	22.3	4.9	61.8	10.9
C	71	100.0	31.0	14.1	42.2	12.7	52	100.0	21.2	9.6	36.5	28.0
D	58	100.0	19.0	20.7	46.5	13.8	34	100.0	14.7	17.6	50.1	17.6
	CORRELATION, CWHS and TRAINEE PERCENTS:								r = .852	Sig 1%		

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[1] Continuous Work History Sample

TABLE 12: FEMALES — THE CHANGE IN EARNING PATTERNS FROM 1958-62 TO 1965-69 — CORRELATION BETWEEN THE CHANGES OF 1964 CWHS[1/] MEMBERS AND MDTA INSTITUTIONAL TRAINEES, BY EARNING PATTERN IN 1958-62

Pattern 1958-62	1964 CWHS						1964 INSTITUTIONAL TRAINEES					
	Total		% With Pattern in 1965-69				Total		% With Pattern in 1965-69			
	Number	%	R	D	M	C	Number	%	R	D	M	C
						Age in 1964:	Under 20					
R	401	100.0	16.9	9.0	69.6	4.5	513	100.0	15.8	9.6	69.2	5.4
M	47	100.0	19.1	17.0	59.6	4.3	97	100.0	12.4	10.3	75.3	2.1
C	1,908	100.0	19.8	9.0	66.0	5.3	3,036	100.0	16.0	10.2	65.6	8.2
D	4	-	-	-	-	-	4	-	-	-	-	-
CORRELATION, CWHS and TRAINEE PERCENTS:									r = .981	Sig 1%		
						Age in 1964:	20-24					
R	1,671	100.0	18.7	15.9	57.6	7.8	2,182	100.0	19.1	11.2	64.4	5.4
M	1,089	100.0	17.4	13.1	61.3	8.1	1,783	100.0	14.8	11.1	66.6	7.6
C	633	100.0	14.7	13.1	57.8	14.4	2.646	100.0	17.3	10.0	62.0	10.7
D	26	100.0	15.4	11.5	61.6	11.5	85	100.0	10.6	4.7	71.8	12.9
CORRELATION, CWHS and TRAINEE PERCENTS:									r = .994	Sig 1%		
						Age in 1964:	25-29					
R	639	100.0	29.4	12.2	52.1	6.3	451	100.0	22.8	10.6	59.4	7.1
M	1,177	100.0	21.7	12.1	58.5	7.6	1,665	100.0	19.4	9.2	64.0	7.4
C	234	100.0	20.1	11.1	52.1	16.7	605	100.0	21.8	10.4	52.1	15.7
D	115	100.0	24.3	9.6	55.7	10.4	179	100.0	21.2	10.0	59.9	8.9
CORRELATION, CWHS and TRAINEE PERCENTS:									r = .991	Sig 1%		
						Age in 1964:	30-34					
R	598	100.0	32.1	8.5	54.0	5.4	421	100.0	27.8	8.1	58.2	5.9
M	973	100.0	24.4	9.8	59.6	6.3	1,240	100.0	23.1	8.2	61.4	7.3
C	328	100.0	23.8	10.4	51.5	14.3	678	100.0	28.9	8.4	49.4	13.3
D	79	100.0	19.0	13.9	48.1	19.0	183	100.0	21.3	8.2	58.5	12.0
CORRELATION, CWHS and TRAINEE PERCENTS:									r = .981	Sig 1%		
						Age in 1964:	35-39					
R	787	100.0	43.3	6.4	46.2	4.1	438	100.0	33.6	5.0	56.4	5.0
M	1,114	100.0	26.2	6.6	62.6	4.6	1,189	100.0	22.3	8.5	61.6	7.6
C	339	100.0	28.9	13.9	43.4	13.9	777	100.0	27.4	7.3	51.2	14.0
D	82	100.0	25.6	20.7	42.7	11.0	154	100.0	22.7	10.4	57.8	9.1
CORRELATION, CWHS and TRAINEE PERCENTS:									r = .949	Sig 1%		
						Age in 1964:	40-44					
R	958	100.0	42.9	7.0	47.1	3.0	491	100.0	32.0	7.5	51.9	8.6
M	1,141	100.0	27.0	8.7	59.2	5.1	1,134	100.0	27.0	8.6	57.2	7.2
C	362	100.0	28.7	11.0	48.6	11.6	728	100.0	31.3	9.3	42.3	17.0
D	87	100.0	18.4	12.6	56.4	12.6	122	100.0	30.3	12.3	43.5	13.9
CORRELATION, CWHS and TRAINEE PERCENTS:									r = .953	Sig 1%		
						Age in 1964:	45-49					
R	968	100.0	46.8	7.6	41.8	3.7	330	100.0	32.7	9.7	46.7	10.9
M	1,016	100.0	26.7	9.5	57.3	6.5	964	100.0	29.0	8.9	54.7	7.4
C	273	100.0	34.4	10.2	37.7	17.6	547	100.0	32.4	6.8	38.0	22.8
D	70	100.0	25.7	14.3	48.6	11.4	108	100.0	28.7	6.5	58.3	6.5
CORRELATION, CWHS and TRAINEE PERCENTS:									r = .944	Sig 1%		
						Age in 1964:	50-54					
R	881	100.0	46.9	6.6	43.1	3.4	212	100.0	32.5	9.0	50.0	8.5
M	931	100.0	26.6	10.4	56.0	7.0	537	100.0	30.7	8.8	51.2	9.3
C	228	100.0	33.8	14.9	33.8	17.5	308	100.0	29.5	7.5	31.5	31.5
D	76	100.0	15.8	17.1	53.9	13.2	80	100.0	36.2	6.2	42.6	15.0
CORRELATION, CWHS and TRAINEE PERCENTS:									r = .850	Sig 1%		
						Age in 1964:	55-59					
R	707	100.0	39.6	11.5	44.1	4.8	66	100.0	33.3	7.6	47.0	12.1
M	772	100.0	19.6	14.0	60.0	6.5	213	100.0	23.9	8.4	55.4	12.2
C	170	100.0	18.2	13.5	45.3	22.9	138	100.0	18.1	8.7	38.4	34.8
D	51	100.0	19.6	15.7	49.0	15.7	25	100.0	28.0	8.0	48.0	16.0
CORRELATION, CWHS and TRAINEE PERCENTS:									r = .931	Sig 1%		

1/ Continuous Work History Sample

1958-62 DECREASERS

While the number of 1958-62 DECREASERS is small, this group, in the main, shifts to the MIXER category in 1965-69. While this is the predominant change, there is a significant, albeit relatively small shift to the RISER pattern in 1965-69. Relatively few individuals change to a CONSTANT pattern in 1965-69.

1958-62 CONSTANTS

By definition, the CONSTANTS experienced neither increases nor decreases in annual earnings during 1958-62 and hence were excluded from the discussion in earlier sections. In fact, their total earnings in 1958-62 were very close to zero, as might be expected. Nonetheless, although they tend to be predominant in the under twenty age groups, there is a distinct tendency for many, indeed for most CONSTANTS to move into the MIXED pattern group in 1965-69.

CER and Trainee Pattern Changes

Perhaps the most interesting confirmation of my thesis is to be found in the correlation between the respective changes in pattern of the CWHS members and the 1964 MDTA Institutional trainees. For both men and women, the pattern changes of the CWHS members and the trainees reveal the same process of change, and the determinative influence of the 1958-62 pattern on the change from 1958-62 to 1965-69. For each age group, whether of men or women, the CWHS and trainee pattern changes are significantly correlated, as shown in Table 11 and 12.

The correlations suggest that from entry into gainful employment to retirement, changes in earning capacity become increasingly patterned and determinative, and that efforts to permanently improve the earnings of disadvantaged individuals require programs and means commensurate with the deeply-rooted and holistic factors reflected by the earning patterns of individuals.

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